TEXTILE BULLETIN

Vol. 54 June 16, 1938 No. 16

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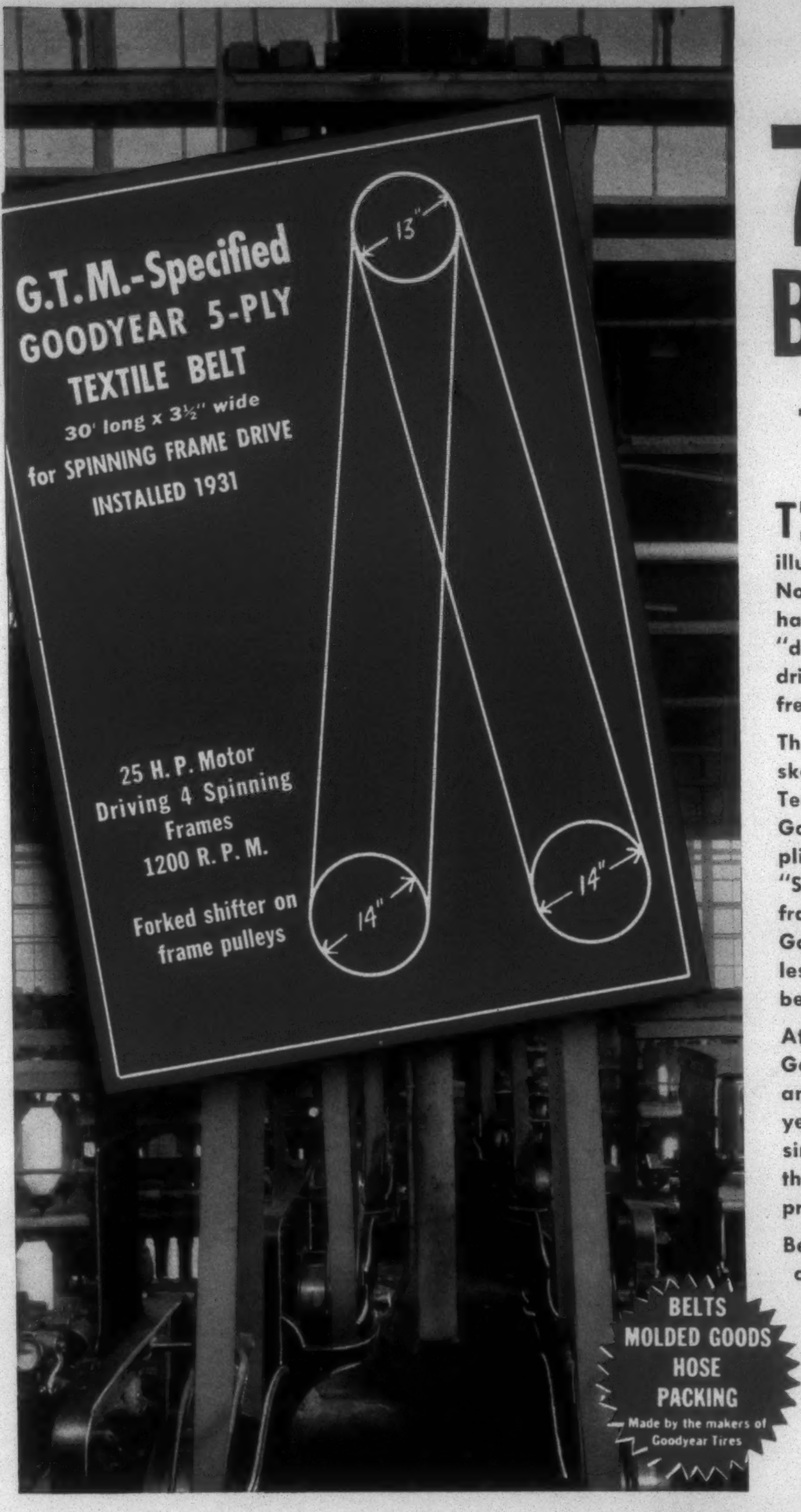

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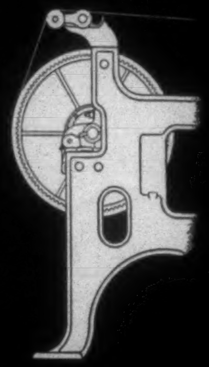

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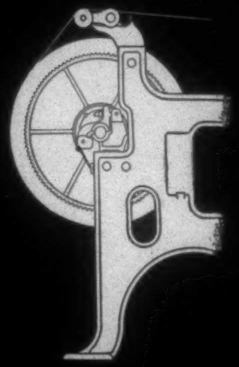

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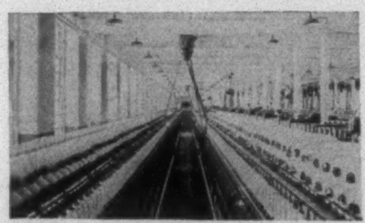

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TEXTILE BULLETIN

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Modern Textile Air Conditioning*

By Agnew Bahnson, Jr.

FOR many years, textile men have been forced to protect themselves from fickleness of the weather. In the early days when the bulk of textile manufacturing was done in England and Scotland, natural weather conditions were so conducive to good manufacturing that the good humor of Old Man Weather was taken for granted and improper reverence was shown for the endless troubles that changing weather conditions can cause. Even after textiles began to be manufactured in New England, insufficient notice was taken of proper atmospheric conditions because people were still willing to put up with a certain amount of crudeness and inconvenience. However, with the advent of steam heat and as the mills began drifting South, the obstinacy of the weather could no longer be ignored. Something had to be done to keep the air from being so dry.

The early attempts to add moisture to the air usually consisted of sprinkling the factory floor or hanging troughs of water along the walls, thus taking advantage of "surface evaporation" to add a small and undetermined amount of water to the air. This attempt was quite inadequate and caused a great deal of inconvenience.

The liberation of steam was widely used in the early days. The "old timers" will recall the "vapor pot" which delivered steam vapor directly to the air. This method met with partial success during severe winter weather when a slight addition of moisture was noticeable and when the "vapor pot" and steam lead could be used as a radiator to heat the room. But during warm weather, the heat given up by the steam was so great that conditions in the room became intolerable long before the humidity was high enough for good processing.

Consequently the "vapor pots" were soon superceded by a spray nozzle which sprayed cold water in the air and had the distinct advantage of liberating moisture without heat. Its humidifying capacity was much greater than that of the "vapor pot" as shown by the following example: one lb. of water evaporated in a room uninfluenced by other conditions which contains 5,000 cubic feet of air at 80° F. and 32% relative humidity, will lower the temperature to a little less than 69° and will raise the relative humidity to 63%, while the liberation of a lb. of steam will *raise* the temperature to 81° and raise the relative humidity to only 43%.

One of the chief reasons for this wide discrepancy lies in the fact that warm air will hold more water than cold air. This water is held in the air as invisible vapor. For example, air at 80° F. will hold almost four times as much water vapor as air at 40° F. Now absolute humidity is determined as the number of grains of moisture that are actually held in a cubic foot of air, but relative humidity is the amount of moisture in the air relative to the amount of moisture the air can hold at that temperature and pressure without precipitating visible moisture as fog or rain.

Referring back to the example given, the absolute humidity is raised to 4.90 grains per cubic foot of air in each instance because the same amount of water was added to the air in both instances. But since air at 81° F. can hold approximately 1.56 times as much water as air at 69° F. contained 63% of the moisture it was able to hold, and the air heated to 81° F. contained only 43% of its capacity.

Obviously the spray nozzle which added no heat to the air was far superior to the "vapor pot" which, by heating the air, made it necessary to add more water to the air to obtain a higher relative humidity and thereby established a vicious circle that made it impracticable. If we could only regard the absolute humidity instead of the relative humidity, the problem would be simplified, but hydroscopic materials such as silk, cotton, wool, jute, flax, paper, wood, tobacco, etc., respond to relative humidity and not to absolute humidity.

Though the spray nozzle, if properly installed, is quite effective for introducing moisture into the air and distributing it uniformly, there is no means of circulating this air which has been humidified. This humidified air unless positively circulated cannot properly reach the product in process and will become stagnant air, moved only by random drafts.

It was not long before the decided advantage of circulating this humidified air was realized. Consequently the next step in humidifying equipment was to produce a machine which emitted the vaporized water by a blast of air. Both the atomizers and this type of machine employing a fan for circulation were dependent upon compressed air or high water pressure for their operation. Naturally there was a demand for a machine which would be self-contained, requiring only electric current and water at low pressures.

Such a self-contained machine was evolved. This machine was of the centrifugal type. Water being fed on to the back of the disc is hurled against stationary teeth by centrifugal force and is broken up into a fine spray. This fine spray is blown from the face of the machine by a fan. One type of centrifugal humidifier has the spinning disc placed in a vertical position and the resulting current of humidified air is directed in only one direction. Since this machine is a unit complete in itself, several of these units can be arranged to co-operate with one another in effecting a positive circulation of the humidified air to all parts of the room.

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*Presented at meeting of Northern Master Mechanics' Division of Southern Textile Association, Greensboro, N. C.

Another type of humidifying apparatus was the so-called "central station" type. The air is drawn into a large metal chamber which contains a number of spray nozzles. As the air passes through the fog filled chamber, it becomes humidified and is delivered to the room by a system of ducts.

The "central station" resembles the familiar hot air furnace which many of us have in our homes, in that the air is conditioned in one place and distributed by ducts. Both in the case of the hot air furnace and of the "central station" humidifying system, enough air must be routed through the apparatus to maintain the desired heat or humidity. The modern demand for efficiency has found that heating coils and filters in series with the humidifying chamber is economical, thus the essentials of air conditioning were localized. It remains to take advantage of the great cooling to be had by evaporating water. Though some cooling naturally resulted from humidification, since every lb. of water which is evaporated at 70° absorbs 1,052 B. T. U.'s, cooling by evaporation was not scientifically established as an essential of modern air conditioning until positive ventilation and predetermined air changes were made possible by automatically controlled dampers. Naturally, in modern air conditioning, it is essential that all incoming and recirculated air be under the control of the system. Random ventilation by open doors or windows cannot be permitted.

The development of modern air conditioning equipment has gone one step further in its quest for thorough and efficient performance. It has taken advantage of the modern trend toward smaller units to find the greatest flexibility and the lowest operating costs. This latest development is a machine consisting of a humidifying unit which is placed in a small duct designed to meet the requisites of the room to be conditioned. The fan of the humidifying unit is likewise the heating and ventilating fan since the heating element is placed in the intake of the duct and the fan draws air through this section from the outside. An automatic damper system proportions the inside and outside air which is drawn into the duct.

These ducts are installed against the ceiling of the mill and are arranged to compensate for the varying conditions which are often found in the room, due to different types of machinery, the location of heating pipes, points of infiltration, etc. These units provide a maximum of flexibility since the rearrangement of machinery or the addition of new machinery in the room may easily be compensated for by rearranging the ducts or by adding more units. Likewise, if some part of the machinery is to be removed, the number of ducts which will no longer be needed may be used elsewhere. Another improvement enjoyed by this modern unitary system is the lower operating costs. Since the conditioned air is not forced through many feet of ductwork, it can be delivered into the room with less energy from the fan and, therefore, at a lower power cost. One type of modern unit delivers the air with entrained moisture and this further decreases the amount of air which it is necessary to handle; further lowering the power cost.

During the last few years, textile air conditioning has come strongly to the foreground. Almost every cotton mill without exception has some form of air conditioning and most of them are modernizing their equipment as rapidly as possible.

One mill superintendent says, "All in all, we fell air conditioning of mills is a paying proposition and we think that before many years have passed, mills not air conditioned will be in the minority." This gentleman is speaking of air conditioning in its true sense, with special emphasis on the great possibilities of evaporative cooling. From an experience in his own mills he further states, "Before this equipment was in operation, it was not unusual after four or five hours running to have a room temperature of 100° even in the coldest winter weather. It is hard to tell what the temperature would have been during this past summer without this system. The highest recorded temperature on July 27th (our hottest day outside) was 90°, while the outside temperature was 104° in the shade."

Silk and rayon plants are beginning to realize the economy of proper air conditioning, particularly in winding, spinning, and weaving. The Cooper, Wells & Company, one of the country's outstanding manufacturers of full-fashioned hosiery, says, "Because of the delicacy of silk and of full-fashioned knitting machines, the humidity and temperature in all rooms must remain constantly unchanged. Thus, from the time silk starts in the reeling room until it emerges as a complete full-fashioned stocking, it remains in rooms with a temperature of 80° to 81° and an average relative humidity of 65 per cent." They consider these uniform manufacturing conditions essential to the quality of their fine product. The marked economy of favorable and uniform atmospheric conditions are likewise being realized in the case of wools and worsted and even that of flax and jute.

Although the phrase "air conditioning" is generally used today to describe any equipment which is designed to change the condition of the air, complete industrial air conditioning incorporates controlled heating, controlled cooling by evaporation, controlled ventilation, controlled humidification, dehumidifying by heat, and automatically controlled cleaning of the air. Air conditioning in the domestic sense would only be complete when refrigeration was employed to cool and dehumidify, but for industrial purposes, this would be much too expensive both in first and in operating costs. The use of silica get or other dehumidifying agents may be considered as accessories to true industrial air conditioning.

Aside from the effect of comfortable working conditions on the efficiency of the operatives proper, uniform conditions show a marked economy in production cost in this day of accurate production and high quality merchandise. Let us note some of the effects of atmospheric conditions on textiles in process.

Proper humidity is an out and out necessity to the production of cotton goods. The cotton fiber when growing in the field is a cylinder about .0004 to .0008 of an inch in diameter. Its cell walls are porous and inconsistent in structure and the "heart" of the fiber is a central canal filled with juices. The cell walls are of pure cellulose and the whole fiber is covered with a waxy coating.

With the riping of the cotton boll, the fibers are exposed to light and air and the juices of the central canal dry up, causing the cylinder to collapse and become

(*Continued on page 27*)

Northern Master Mechanics Discuss Problems

THE newly organized Northern Master Mechanics' Division of the Southern Textile Association, comprising the master mechanics of the mills of North Carolina, Virginia and Tennessee, met for the first time in Greensboro, N. C., at the White Oak Division of the Cone Memorial Y. M. C. A. on Saturday, June 4th.

The following is a stenographic report of the meeting:

Chairman W. H. Leathers: Gentlemen, we will now have invocation.

Invocation was had, while all were standing.

Chairman Leathers: I think most of you fellows have gotten cards. I understand that this division has been organized to make it more convenient for those of us who cannot go so far from home.

Our attendance is a little short today, on account of election. I am very glad indeed to see all of you here.

Mr. Cone is going to speak to you a minute. (Applause)

Bernard Cone, President of Proximity Mfg. Co., Greensboro, N. C.: Gentlemen, Master Mechanics, I feel honored at having been requested to come here this morning to bid you welcome.

I was casting about for some thought or idea that I might get over in a five minute talk to you in order to leave some thought with you and it came to me just a while ago. I went over to the polls at the Proximity Precinct to register my vote as a citizen of the United States and of the State of North Carolina, and all strewn on the floor were these many pictures of the faces of the various candidates. And while I was there waiting my turn to vote, I got to thinking and contrasting that set of men with the set of men whom I was about to address, this thought came to me: this set of men I am about to address are real workers, fellows who are doing something; all these fellows whose faces were scattered before me—when it comes down to brass tacks—are really "do nothings", they are, fellows, both sides, both opposing candidates, almost all of them, "do nothings."

Now, those are awful sweeping statements and I might get myself in trouble some day as a result, but I don't believe there is a man in the bunch who is worth his salt. They are mostly folk who are out either for a soft snap, a job that brings a salary without any work, or they are out for, you might say, the honor and the glory of it or the fun; and after all the work, if you call it work, and I have already just said it isn't work, that they are going to do is not really going to help and is not calculated to help the country.

The trouble is, gentlemen, right now and make no mistakes about it, we are in not a so-called recession but we are in a depression, we are in a major depression. Things about to be done may alleviate it temporarily but ultimately I am afraid there is worse yet to come. But these fellows will go down to Raleigh and they will go up to Washington and what will they do—enact more and more and more and more laws. Each one of them will have some pet theory he wants to try on us. The trouble is, that we have too much legislation. Hardly ever is there one law on the books before it is replaced by another law. We don't know where we are at.

If we could have a moratorium in legislation, if we could stay put for two, three, five or ten years, if we would pay the fellows the salaries they are going to get or even double those salaries, to stay at home and do nothing or leave the laws as they are, we could get somewhere. You know, you can get along better under a bad law if you know what it is than under a possibly good law if you don't know what it is and can't guide your actions in accordance therewith.

Now, I am afraid to go further on that subject because you gentlemen have serious work to do here this morning. As I said, you are the workers. This thought came to me, that the master mechanics of any plant are possibly one of, if not the very most important department of that plant. You are, as it were, the doctors, the men who have to keep the physical health of those plants up to par. If there is a breakdown that cannot be repaired the whole works may stop and not only your work but that of the laborers in the other departments be stopped. And I believe there is no more important and more dependable set of men in any plant than the master mechanics.

Now, as I said, I know you have a long and serious program and I hope that you will have a successful and a satisfactory meeting. I, on behalf of the White Oak cotton mills and of our local community and the city of Greensboro, take great pleasure in bidding you all a hearty welcome. Thank you. (Applause)

Chairman Leathers: Now, there is one question that is pretty important to each and all of us. I imagine we have all gone into it. There have been quite a number of changes in the last few years and in the next years to come there will be considerably more changes—and that is, in air conditioning.

We are all interested in air conditioning. We have invited a young man here today that I believe is fully qualified to talk to us on this subject and we are going to ask Agnew Bahnson, Jr., to speak to us on air conditioning. Mr. Bahnson.

See Page 5 for copy of this talk.

Chairman: On our regular program, the first question is *"What can be done to affect power savings and reduce the peak demand?"* That is an important question and I do not feel that we can give it too much time. Is there anybody who would like to ask a question or that will give us anything on that important subject? Tell us what you are doing, Mr. Edmiston.

E. E. Edmiston: Well, we start up our machinery at six-thirty in the morning and we gradually build up our load until seven o'clock or a little thereafter. I don't know what is the best plan, but that is what we are doing.

Chairman: Somebody else, what are you doing? Mr. Misenheimer, can you tell us something about that?

L. W. Misenheimer: Mr. Chairman, our conditions are such that we start off on Monday morning with possibly around twenty per hour and then we get up to eighty or ninety pounds of steam per hour, due to the fact that our boilings don't come on with our machinery load. We have to run the goods before we can boil it. For that reason after Monday at three o'clock we have a constant load throughout the remainder of the week. By doing that we have a drop in our loads on the weekends.

We know that the more efficiency we get out of our steam load the better, but we do have a loss on our Monday morning startings and we have a loss in the weekend. However, there are a lot of things to be taken into consideration—and while we are on this question, I would like to ask the question as to how many in the audience know the amount of steam that they generate and also how much B. T. U. do you claim in your steam plant? That is an important question to all of us, I think. As you all know, that is the biggest end of the saving that any master mechanic can show in his steam plant.

As a rule the maintenance is a fixed subject, it is a fixed charge for that and we hardly ever get credit for what we are doing as a mechanic in the way of saving money; but if you do cut the cost of the coal bin why they will notice that at the office quicker than anything else—at least, that is my experience. And I would like to know if the gentlemen present keep tab of their reclaimed B. T. U.'s, and their horsepower that they get out of the coal, I mean per pound of coal.

And while I am on the floor, I would like to say that we have recently installed a pulverizing unit in our plant and I have found that it's quite a saving over any other method that I have ever used in the boiler room. I am getting at this time from eleven and a quarter to twelve and a quarter pounds of steam per pound of coal, something I have never been able to do in any other way, and I am doing it on a much cheaper coal than we were burning prior to that time. On our horizontal return tubular boilers that we had in this plant we were getting nine and a half and ten pounds. Now you can figure it out for yourself what it means in dollars and cents in the coal pile. It saves us an average of over a car and a half of coal per week and on the same load, because I took into comparison the three months run prior to the time we went on this new unit, and that is what it shows us, at least a car and a half of coal every week difference in what we have been burning. We were burning around eleven cars, now we get by with nine and nine and a half cars per week on our steam load.

Chairman: Has anybody a question they would like to ask Mr. Misenheimer? Who else has steam plants? I am sure that somebody in this crowd must have steam plants. I have one. I would like to ask Mr. Misenheimer, what rating do you find the most efficient point to operate your boilers? My experience has been around 150% of the rate.

Mr. Misenheimer: Mine is 250% rate.

Chairman: What type of boilers do you have?

Mr. Misenheimer: I have got B. and W.

Chairman: That is your best rating?

Mr. Misenheimer: Yes, sir.

Chairman: Do you think it would be practical to use it in a plant boiler under three hundred horsepower? If you were going to operate one boiler, not over three hundred horsepower, would it be economical to install a pulverizing equipment?

Mr. Miseheimer: I think it would, yes.

Member: How do your furnaces stand up under that?

Mr. Misenheimer: Well, we haven't experienced any trouble on the B. and W. type, we are running now at the present time 225% rating and we are not experiencing any trouble in our ordinary setup. Prior to that time we only had two boilers and we ran over three hundred per cent and we had to rebrick once every year, that is, one side lining.

Chairman: I think most of you have possibly the same things to contend with that I do, that is, not having the equipment for checking the efficiency of our boilers. I think we ought to have equipment. I believe if we could persuade the management to understand how important it is and how much it would mean to the mill, most of us could have equipment for checking the efficiency of our power equipment, if we went about it in the right way.

Has anybody else got anything to say on this?

Member: I would like to ask the gentleman about this saving of a car and a half a week. I would like to ask if he could give the percentage of reduction in the cost of steam per pound of the pulverizing operation as compared with stoker operation, the percentage in cost of those two operations.

Mr. Misenheimer: It is 30% less.

R. L. Yates: Gentlemen, our plant over here, our power plant is supervised by the outside way. I mean, it is a separate unit. Our superintendent of power is out of town at this time but I went to see if we could get a fellow to give us the lineup on our plant. We use pulverized coal and we are supposed to get about 65% of our condensation back to the boilers and I don't know around what temperature, but I know it comes back so we can hardly pump it. We pump it back over to the power plant, and as you all know we run 150 pounds of bleeder steam over to the print works, about a third of a million I reckon, overhead steam line, and we are suppose to get back 65% of that, that is condensation. But I don't know just what the figures are, or wether we get that much.

As soon as Mr. Ward gets back I hope to be able to give you some light on our power plant.

Mr. Misenheimer: I would like to ask, how you get the record of what you reclaim?

Mr. Yates: Yes, sir, I can tell you something about that line, too. I will try to answer Mr. Misenheimer's question. Our fireman sits right out in front of a board and he can tell at every instance the temperature of the exhaust as it goes through, the temperature of the furnace, in other words, everything is recorded and it is

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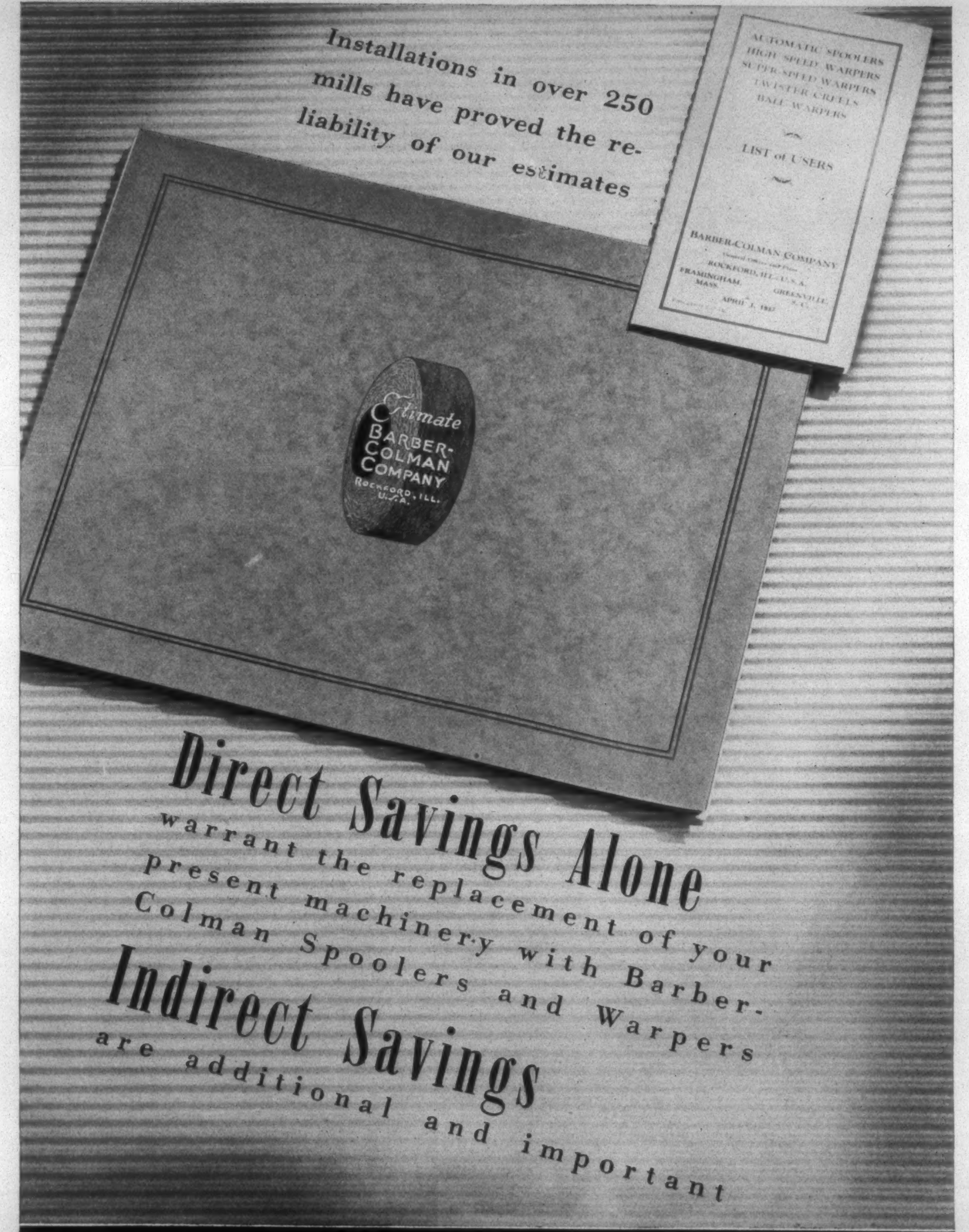

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Northern Master Mechanics Discuss Problems

(Continued from Page 8)

right there in front of him. He don't have to leave that board to raise or lower his steam pressure, he can adjust it by touching buttons or moving little levers, he can change the revolutions, the pulverizing, and everything. In fact, we are so well insulated down there in the plant, we have the heat so well insulated that we have to wrap our hydraulic cylinders right there in front of the boilers, if we don't they will freeze in winter. That shows you how well we are insulated for the saving of heat.

I will not say anymore now, I will just wait until we can give you more information on these things.

Reducing Power Consumption On Looms

Chairman: Thank you very much. Are there any other questions; has anybody else got a question to ask on this?

If not, we will go to the next question and get back to that when we get your information. The next question is, *"What can be done to reduce power consumption on looms?"*

Now we all know what looms are; they can be made to carry or take possibly twice as much power as they should take, and of course it is not always in our control as to how those looms are set up. I have never been able to do much about it except to use tact and diplomacy, the best I could in cooperating. But I just wonder if anybody has done anything about this or has a plan whereby you control this matter. I wonder if somebody can tell us something about that? I see Mr. Queen here, he ought to be able to tell us something about that; how about it, Mr. Queen?

G. C. Queen: Mr. Chairman, I can't tell you much about that. I haven't got very many looms with individual motor drive, the biggest part of our drive is not motor drive. In the production of the goods we are on, we can't tell just how much power it should take; maybe we are on light construction this week and heavy construction the next week, so we don't have much way of telling just how much power should be pulling on that loom. Some of these fellows that have individual motor drive and one construction, I think, could explain that better than I can. I did have a little experience once on one construction, but we had a system of testing the power consumption the loom was pulling and we had a maximum load for that motor. If it went beyond that a form was filled out and turned over to the master mechanic and one was sent to the superintendent, also one to the boss weaver. All of these looms that were pulling more power than the maximum allowed on them, were checked and it was up to the boss weaver then to get that power off those looms and then report back to the superintendent that they had been. But I think that the fellows that have individual looms could tell you more about that than I can. We have no way of checking ours.

Chairman: Is there anybody that has had experience in trying to check the power on looms?

Mr. Edmiston: Mr. Chairman, there is such a thing as getting too much tension on your springs, and that will take a little more power. Sometimes the loom may not be running as it should; maybe a loom fixer will come around there and put more power on that than it should have, and sometimes the loom is too tight.

I had some experiences with a loom this week. I went in to look and found the power had jumped up. We found that the harness springs had been tightened on this particular loom; we had the springs loosened up and the power dropped back down again. I have those charts with me if anyone would like to see them.

Chairman: Thank you. Has anybody got anything to ask Mr. Edmiston about this test? Does anybody want to see the charts, he says he has some charts there with him.

Repair of Concrete Platforms and Floors

If there are no more questions, we will go to the next question, which is, *"What is the best method of repairing concrete platforms and floors?"* I wonder if anybody can tell us how you do it, what you use, and how well it lasts. Mr. Norris, can you tell us something about that?

J. W. Norris: Well, I haven't had a great deal of experience along that line. We have done some paving but it's been with different kinds of materials.

Chairman: Well, Mr. Shumate, can you tell us something about that?

O. L. Shumate: Well, like Mr. Norris, I have had very little experience in paving and I don't believe I would be capable of giving an answer to that question.

Chairman: Mr. Williams, from Marshall-Field, can you tell us something about that?

H. E. Williams: Stonhard has been used and has given very good results, where you don't have grease. I think that has been the answer to one or two places.

Chairman: Mr. Riddle, can you tell us something about that?

E. E. Riddle: We haven't had much experience with that, but that is one thing I would like to find out something about because we do have some concrete floors that are very badly in need of repair.

Chairman: Can somebody else tell us about that?

A. C. Shelton: Mr. Chairman, I have had lots of experience with that the last two or three years. I am using a product that is manufactured or sold in Greensboro and we use that right much on floors where there is trucking. We use that, of course, with the primer and mix this with sand, cement and very fine gravel. I find that stands up mighty well under heavy trucking.

Chairman: Has anybody else had any experience?

Member: Mr. Chairman, I would like to ask about the outer portion of the hole.

Mr. Shelton: You take the primer and fill up the hole and go out about four inches around and make it just a little bit higher than the original floor.

Member: It don't flake up?

Mr. Shelton: no, sir.

Mr. Williams: If there is any grease around my advice is not to use it.

(*Continued on Page 12*)

Patent Is Granted To Burlington Man

Burlington, N. C.—Jesse C. Fogleman, an employee of the McEwen Knitting Company, has been granted a patent on a device to reclaim yarn in knitted goods, Barnie P. Jones, his attorney, announced.

The device, Mr. Jones said, is such an improvement to an existing machine that the patent office honored it. The principal is that a piece of knit goods, damaged enough to throw it into a second class item or loss, may have the yarn reclaimed for further use.

Progress Made On Plan To Find New Uses For Cotton

Washington.—Considerable progress was made during past year on the experimental program conducted by the Marketing Section of the Agricultural Adjustment Administration to find new uses for cotton and cotton products, it was made known by Marketing Section officials.

According to official figures, there was a total of 458,200 square yards of cotton fabrics ordered from manufacturers and distributed in the furtherance of various projects. The cotton purchased was manufactured in the following States: Alabama, Connecticut, Georgia, Maryland, North Carolina, Pennsylvania, Louisiana and South Carolina.

The fabric purchased was distributed in more than 30 States and for the following purposes:

Covering, or membrane, in land irrigation; erosion control; construction of water storage facilities and controls; maintenance of highway fills or cuts; protection for agricultural and horicultural products; roofing or covering material for small buildings; and as a covering or pattern for cotton bales.

Practically all of the fabric was used by Federal and States agencies and institutions for experimental work, all cooperating to find new uses for cotton which have not been normally outlined in the past. These agencies and institutions include U. S. Army, Soil Conservation Service, Forest Service, Bureau of Entomology and Plant Quarantine, Bureau of Plant Industry, and State Penitentiaries.

Silk Hose Bring $125 for Charity

Waycross, Ga.—A pair of silk hose, auctioned off here for charity, brought the handsome sum of $125, which has been placed at the disposal of the Kings Daughters' Home for Children.

It wasn't an ordinary pair of hose, however. It was the first pair manufactured in the new Waycross Hosiery Factory.

The auction sale was conducted by Will C. Parker, and the hose were sold and resold, at $15 and $10 a clip. Purchasers were Mayor C. E. Layton, L. B. Harrell, J. H. King, Allen Churchwell, M. M. Monroe, Rubin Brothers, Dr. W. L. Pomeroy, Al Palmer, E. C. Rees and Harry Schrieber.

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Northern Master Mechanics Discuss Problems

(*Continued from Page* 10)

E. T. Davidson: Mr. Chairman, that is one of the things I came over here today for, to find out how to fix concrete floors. I haven't been able to have much success with it. We have tried several materials and they were not satisfactory. My old carpenter foreman has fixed up some holes and he got a pretty good job but I don't know what proportions he used.

Chairman: That is one thing that we all have trouble with and we have done very little about it.

E. T. Davidson: I have been trying to fix platforms and floors for eight years and I haven't found anything yet that is really satisfactory. I have tried mighty near every make of stuff on the market. It will flake off around the hole and then you have an additional hole in the cement, right where it runs off of that, and then you have to fill that up. I have been having that experience for eight years and that is one of the reasons for my being over here today, I want to see if anybody has found out anyway to fix it.

Mr. Williams: We tried one experiment that was right interesting in a hosiery mill. We covered the floor, between the knitting machines, with wood and fastened in one piece at right angles to the other to hold the floor itself in position, with tongue and groove so it would slip in and fasten the end pieces down, hardwood maple flooring, and it is satisfactory so far.

Chairman: Has anybody any further questions; has anyone been using any other materials and if so, what?

Member: Mr. Chairman, the gentleman speaking there a minute ago, I think he was talking about the same material that I have used. I find that he didn't explain what kind of flooring he was using.

Now, as to patching concrete floors, where you have dye, a dye plant, that being the case in a large majority of the cases these days, it would be advisable to find out what you have got on the floor and then you will know what to put on it perhaps. If you have chemicals on there, certain dyes, it just will not stay; but if it is put down right, under proper conditions, it will last a long time. I have put it down where it wouldn't stick at all.

I think it is best to take into consideration what you have on the floor when you go to patch it.

Chairman: That is right; when you are trying to patch floors, the best thing to do is to have the manufacturers to guarantee it, don't you think?

Mr. Yates: We use just ordinary cement for patching floors. I find that the only way to make a patched floor is to cut through the floor, cut entirely down through the floor, an then make the hole larger at the bottom and then when you fill it up it cannot come out, you see. In other words, make your hole bigger at the bottom and when you fill it up it can't come out unless it bursts. If you put it in a hole in a low place nine chances out of ten it comes loose and comes out. I was afraid somebody would ask about plastering—I don't think we can tell you anything about that. (Laughter)

Member: What trouble do you have at the seams, do you wear out another hole there?

Mr. Yates: No, not necessarily. Sometimes we do if we leave a feather edge there, it will crumble around there. We have made good jobs and we have made some bad ones. All of our work is not perfect.

E. T. Davidson: We have used three different kinds of stuff and experienced men have come down to show us how and yet that has been my experience.

Member: It is good on paper, but when it comes to practice it don't work so good.

Chairman: Is there anybody else that has had experience in platform work on floors?

Mr. Misenheimer: Mr. Chairman, I find, like Mr. Queen says, if you have got acid on the floor or grease on that floor there isn't anything going to bond it. For patching concrete floors, the best method I have ever had in my experience is to wash up with acid and put the concrete on and it will bond to the old concrete. That is the best job that I have done and I have used all kinds of patch stuff. I have got some patch stuff now that has been on the floor for eight or ten years, but it is under conditions that don't require a great deal of traffic, and it is standing up pretty well. But when you put in trucking it is pretty hard to get good results. I have used several kinds of floor patching and what I use mostly is made by Stonhard. The reason I mention that, I thought maybe some of you had used the same kind. I find that if you will follow their instructions and prepare the patch like they recommend, if you haven't got acid or oil condition, that patching will stand up pretty well.

In other words, if you have an acid condition there or oil, why it isn't going to bond. If you don't use that primer and use it as they instruct, you are just wasting your time and money to put it in. They have an acid treatment. I have a floor that has been on for four years and it is still standing.

Chairman: In case you do have an acid or oil condition, then the best thing to do would be to use something to clean that thoroughly.

Mr. Misenheimer: Yes, sir, before you put it down.

Chairman: And you usually can find something to clean it with.

Nickel Iron Castings

Another question we have here, *"Do nickel iron castings have enough increased resistance to wear and shock loads to justify the increased cost over grey iron castings?"* You should be able to tell us something about that, Mr. Misenheimer.

(Mr. Misenheimer shakes his head negatively.)

Well, Mr. Yates, you have a fine machine shop and you ought to be able to tell us something about that.

Mr. Yates: We never use any of it and I couldn't give you any light on that. But our gray iron castings are standing up very satisfactorily. And I tell you what we do, in case we find a casting that will not stay in, we just get us a piece of steel and fix the gear out of that. In other words, we usually use junk castings or something like that lying around the plant and get a gear out of that.

Chairman: How many of you use those so-called nickel-iron castings? Has anybody used them in your

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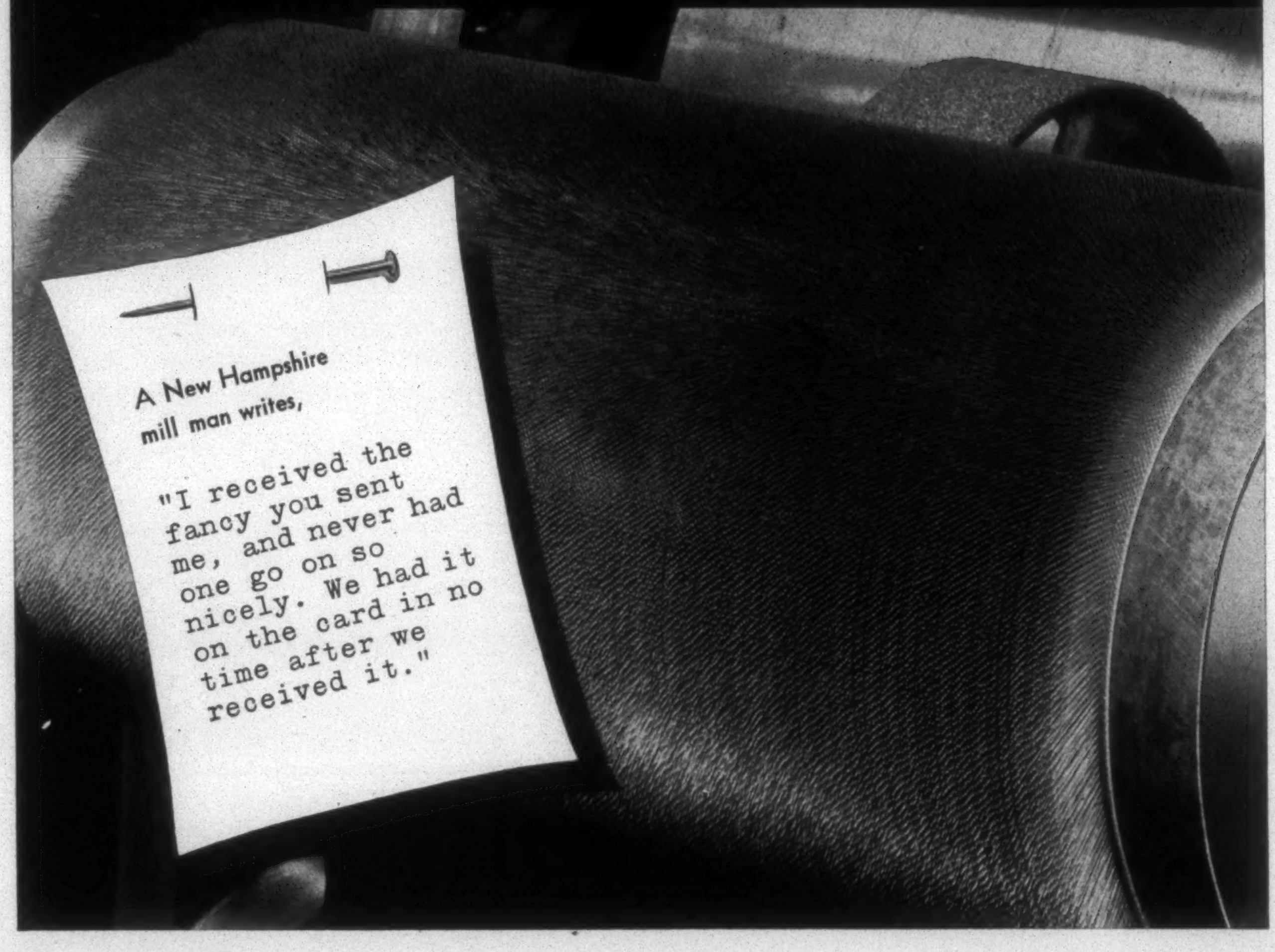

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Personal News

R. C. Remmey is now secretary of the Alabama Hosiery Mills, Decatur, Ala.

J. W. Stuart is now superintendent of the Trion Manufacturing Company, Forsyth, Ga.

Charles B. Pegram, textile executive, is the new president of the Lenoir (N. C.) Lions Club.

A. J. Evans, Jr., is now president of the Fort Valley Knitting Mills, Fort Valley, Ga.

A. B. Carter, president of the Carter Mills, has been elected president of the New Rotary Club organized at Taylorsville, N. C.

Guy Fuller is now superintendent of the Juliette Milling Company, Juliette, Ga.

W. M. Wilson is now superintendent of the Cherokee Cotton Mills, Woodstock, Ga.

Charlie Boswell is now superintendent of the S. Y. W. Hosiery Mills, Inc., Burlington, N. C.

Walter Haene is now superintendent of the Concord Silk Throwing Company, Concord, N. C.

L. D. Smart is now superintendent of the Vamoco Mills Company, Franklinton, N. C.

J. F. Allen is now superintendent of the Hill Spinning Company, Roseboro, N. C.

J. O. Jones, superintendent of the Newberry Cotton Mills, has been re-elected as president of the Rotary Club of Newberry, S. C.

F. Gordon Cobb and his son, Joe, are on their way to Brazil to make a survey regarding the erection of a yarn mill there. Mr. Cobb has been among the outstanding textile operating executives for many years.

George A. Sloan, former president of The Cotton-Textile Institute, has been elected a member of the Board of Trustees of Vanderbilt University, Nashville, Tenn., his alma mater.

Spinners Name Mildred Barnwell As Executive

The Southern Combed Yarn Spinners' Association, at an executive meeting in Gastonia, N. C., elected Mildred G. Barnwell executive secretary to succeeded Fred M. Allen, who resigned April 1st. This announcement was made by R. D. Hall, of Belmont, president of the Association.

Mrs. Barnwell has been executive assistant of the Association since 1931. During that time she has been active in promotion work and in the development of statistics for the combed yarn group. Under Mrs. Barnwell's direction, both of these activities will be continued and expanded.

Mrs. Barnwell is the author of many articles which have appeared in textile publications. She was the secretary of the Wear Cotton Movement in 1931, the forerunner of countless similar program which have developed in the industry since that time. She is the daughter of Captain Samuel L. Gwin, of Greenwood, Miss., one of the most prominent attorneys of that State.

The Southern Combed Yarn Spinners' Association has won recognition as one of the outstanding co-operative groups in the textile industry. Through voluntary action, it has stabilized the production and price policies of its members. It was mentioned particularly in recent weeks for its action in holding firm against the tendency toward wage reductions.

Payroll Is Stolen From Cotton Mill

Lincolnton, N. C.—A report at the sheriff's office said a $619 payroll of the Laboratory Cotton mill, two miles south of here, was stolen June 9th from the mill's store at Southside.

Sheriff George E. Rudisill said the money was left in the store when it was closed for the lunch period.

When the store was reopened, he said, the money was missing. The back door had been opened.

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COMING TEXTILE EVENTS

JUNE 16-17-18

Southern Textile Association Annual Meeting at Mayview Manor, Blowing Rock, N. C.

JUNE 24-25

Textile Chemists and Colorists, Piedmont Division, Summer Outing, Ocean Forest Hotel, Myrtle Beach, S. C.

OBITUARY

ROBERT K. McCONNELL

Northington, Mass.—Robert K. McConnell, 42, treasurer of the Hampton Company, Easthampton Textile Company, and of the Hampton Spinning Mills of Clover, S. C., died at a hospital here June 13th after a brief illness. His father, Thomas McConnell, president and general manager of the company, died at his home in Miami, Fla., three weeks ago.

HENRY JOHNSON

London.—The death of Henry Johnson, a leading figure in the rayon industry in England and the United States, was announced June 13th at Coventry. He was 72 years old. Johnson went to Marcus Hook, Pa., in 1910 and assisted in founding what later became the Viscose Corporation. He also helped establish the rayon industry in Canada.

Appear on Major Bowes Program

The The Swink sisters, Louise 11, and Evelyn, 13, daughters of Mr. and Mrs. W. W. Swink, of White Oak Mills, Greensboro, N. C., broadcasted over a national hookup in New York with the Major Bowes amateur program. The girls played the piano and tap danced and won a high vote.

Needy To Get Cotton Goods

Washington.—The Federal Surplus Commodities Corporation expects to distribute between $7,000,000 and $9,000,000 worth of cotton goods and mattresses to needy families during the next year.

The purchases will be made under the Agriculture Department's program for farm surplus removal and relief. Between $75,000,000 and $125,000,000 is expected to be spent during the 1939 fiscal year for FSCC purchase of cotton, wheat, fruits, vegetables, dairy and other agricultural products burdened by price-depressing surpluses.

Throwsters Elect

The Throwers Research Institute, Inc., of New York, made known last month the election of the Board of Govners for the 1938 terms:

Lee Havey, Van Straaten & Havey; John B. Kingsley, Mid-Valley Silk Co.; and Nathan Lewis, of Kahn & Feldman.

Reelected to membership on the Board are T. F. N. Gray, of Lehigh Valley Throwing Mills; H. V. W. Scott, of Van Raalte Co.; and Arthur G. Schautz, Grove Silk Co.

This again brings the Board up to its full strength of fifteen members, with the following remaining as members: Neil V. Butler, of Richard V. Butler; A. Coradi, Schwarzenbach Huber Co.; George Friedlander, Duplan Silk Corp.; Paul Hemmerich, Duffy Silk Co.; R. K. Laros, R. K. Laros Silk Co.; William R. Rossmassler, Sauquoit Silk Mfg. Co.; E. J. Schellenberg, Atwater Silk Corp.; Joseph Simpson, Columbia Silk Throwing Co.; and Henry J. Tynan, Tynan Throwing Co.

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Northern Master Mechanics Discuss Problems

(*Continued from Page 12*)

shop? How about you, Mr. Pender?

C. M. Pender: Mr. Chairman, we haven't used it enough to know just what the outcome of it is. As to how long they are going to wear remains to be seen, although we know this, that from the standpoint of strength we have experienced some saving there.

Chairman: Has anybody else used nickel-iron castings?

E. E. Edmiston: Mr. Chairman, I used some of that casting. We built up our loom gears and put in a ring. We haven't been doing that so long but I think we are going to like it.

Chairman: Do you think the extra expense is justified?

Mr. Edmiston: Yes, I think so, in some places, not in all places.

Chairman: Yes, I would say so, in some places.

G. C. Queen: Can you tell what percentage of nickel you get in the casting there, what percentage they think is best?

C. M. Pender: As I recall, I think the folk claim about five per cent. I think five per cent is right. That is what we got on this particular occasion.

Chairman: Who else has used this casting? It has been in use quite awhile and I feel that there must be some gentleman here that has used it.

Mr. Pender: Mr. Chairman, I don't want to be talking so much, but we had some brackets on a wool card that would snap and we couldn't increase the size of them, so we went to this nickel casting and we did save quite a bit there with the wool cards. The brackets would break—we want them to break under certain conditions, but they would break just at nothing, you might say, and we had quite a few small brackets, and we made them out of this material and it proved very successful.

E. T. Davidson: I have used it in gear blanks, and I find it makes much smoother gears and they run so much longer, but I don't know whether it really pays or not. It does pay, though, to use it in grate bars. You can put nickel and manganese in the grate bars. Before I began using that about seven months was the longest the grate bars would last; since I went to using that material they last from 12 to 18 months, using the same coal.

Chairman: That is what we want to know, what it means to us in dollars and cents, that is what we are operating for. Has anybody else got anything to say about nickel castings? I believe the general idea then is, that it really pays in some cases, that it is a profitable thing to do, to use it.

E. T. Davidson: I had a grate bar made without telling the foundry man to put in this metal and it's only been in six months and I am going to have to put in a new set right away. He told me I didn't mention it and he never thought about it. If I had asked him he would have put it in there.

Chairman: I hadn't thought about using it for grate bars, I knew it has been used for gears and some other places where you have trouble.

Mr. Pender: On our particular cards there, you take one wool card standing it means eight looms, in other words, standing for ten or fifteen minutes and you lose a lot from the standpoint of production. That is the reason we followed that up, particularly in several places on those cards. It really pays in places of that kind.

Chairman: Has anybody else anything to say about nickel castings?

M. W. Hayden: I would like to add to that question, about loom motor pinions, do they case harden them and why they caseharden?

Chairman: All right, somebody answer his question.

Mr. Hayden: Is it necessary to case harden, and what kind of steel do they make it of?

Chairman: I am sure that is an interesting question. That is a good question. While we are on that, anything that comes to mind that we don't ask just clear enough, just jump right in and ask it again and find out about all these things.

Probably all of these fellows have individual driven looms and make motor pinions, now tell him what you are doing, some of you fellows.

G. B. Ward: We have had some experience with this loom motor pinion business. Several years ago we were just experimenting with the cold roll shafting, picking up odds and ends, and they gave practically as good service as the ones we ordered. However, I would say in about eighteen months or two years we found considerable wear and about eighteen months ago we started to case harden them. Since then we haven't had any trouble with them at all. We use just ordinary cold roll shafting and give the usual heat treatment, about 64th-inch penetration, and we find they are getting along all right with them.

Member: What do you case harden with?

Mr. Ward: We just use potassium cyanide.

Member: Don't you think that is very bad on the lungs?

Mr. Ward: We use a mask on the operator doing that work.

E. E. Edmiston: About two years ago possibly some fellow came along and had a hardening compound and we have been using it ever since and find it very satisfactory. It is made by the Triple A Company, and we like it very much.

William T. Harding: I would like to ask, do the gears show any signs of wear since you started to case harden them?

Member: I don't think we have had a single one to give out. It has been a couple of years since we started that.

Member: We made quite a few gears for long draft spinning; now, we do both ways, we case harden some and some we don't case harden. Some want them case hardened and some don't. On a loom the friction gear is the gear that ought to wear out. We have tried some pinions out of brass. Brass won't last very long. That was an experiment.

We do it both ways and we have heretofore used potassium cyanide for hardening, but we found out it was poison and very hard on the lungs and so we use a compound sold by a firm in Winston, the trade name of which I couldn't pronounce but I could spell it for you. That product is not poison and it does as good a job as the potassium cyanide.

Chairman: Does anybody else make pinion gears?

O. L. Shumate: We have a great number of those pinions up there case hardened. We find that the friction gear when it comes from the loom shop is cast iron. Well, they will run about twelve to eighteen months on a case hardened pinion. We turn the teeth off and shrink a band on there with steel and we very seldom have any more trouble with that. It is more preferable.

Chairman: Is there anybody else that would like to say something on this subject? There is one thing I like at the master mechanics meeting, these fellows will stand up and talk and you don't have to pull them out. The master mechanics will get up and say something. Has anybody else got anything to say about this pinion gear proposition? Of course we want to keep in mind that we have got to keep the cost and production in mind all the time. I am wondering if those pinion gears would wear out often enough to cause an notable loss in production due to the machines being stopped.

C. M. Pender: Mr. Chairman, a whole lot depends on the loom fixer, anyhow. We have found over a period of time that some of them, well, the biggest percentage of them just half set them, either too deep or not deep enough. There was an argument on this proposition and strictly on the loom fixer. Our electrician used to change the motors and occasionally there was an argument there. So to stop the argument we just put it on the loom fixer entirely. We don't fool with it now, the loom fixer has to come and adjust it as it should be. But you have trouble there as they don't all see alike and there is the trouble.

Chairman: That is one of the biggest troubles we have, I think, with reference to gears, is having them properly set. We have so many different people setting gears and they can't all be trained to know just how to set a gear and we have to do the best we can along those lines. But we do have a big problem in improperly set gears and lots of times we get the blame for it and there is nothing we can do about it yet.

Member: I would like to ask the question, is there any difference in the operating of the gears cut on a shaper than on a hobbing machine. Which would run the best and which the smoothest or the longest? Which would run the longest and give the smoothest operation?

Chairman: I use a hobbing machine, myself. I know the hobbing machine, from my experience, is more convenient and I get along faster with it and I believe at the least cost. As I say, very few people are able to properly set gears. We get just about as good results. Does anyone else have anything to say?

A. C. Shelton: I haven't anything to say about the loom pinions, but on this question of gears: we installed a gear shaper last year. I have had no experience with a hobber. We cut them on the mill machine previous to that. But our gear shaper makes a very smooth running gear which will mesh up better than one made up on the milling machine. The production in cutting gears is 150% faster than it is on a milling machine.

Chairman: Are there any other men cutting gears on milling machines? We used to all have to do it, I know, but how many are still cutting gears on a milling machine? (Five held up hands).

Member: I only use the milling machine on spiral gears.

Chairman: Do you gentlemen find the cutting of gears on a milling machine is cheaper than buying them?

Mr. Pender: Mr. Chairman, our experience has been with that, where Mr. Harding is, Marshall-Field & Company, they undertake to cut quite a few gears on one hob.

Our experience has been there on the standpoint of cost, the fellows in the shop when they set up one or six gears, whatever it might be, on the milling machine, they are running one or two lathes, so that the cost of that is, you might say, the cost of operating the machine only. So, under those conditions, I would think it would be justified. Where you are using chain gears, that might make a difference. But the wool game is a little different from cotton. We do not have very many to cut and it is cheaper than we can buy them and we don't figure it costs us anything except the actual running of the machine.

Chairman: I used to cut them that way, myself, but you don't see many mechanics doing that now. I think it is all right to do this when there is no additional cost.

W. M. Hayden: I would like to ask the question, do the other men use ground hobber or unground hobber machine?

Chairman: Some of you fellows answer that question.

G. B. Ward: We use the unground hobber and it is quite satisfactory so far.

This gentleman over here, I believe, said he cut all of his spiral gears on a milling machine. We find it much more satisfactory and a better running gear, to cut it on the hobber, on the hobbing machine.

Chairman: Is there any other gentleman using the same kind of hobber that this gentleman is using?

E. T. Davidson: Mr. Chairman, I have all of mine ground in Gastonia: I use the unground hobber, though. I find that it is not necessary to use the ground hobber in ordinary cotton mill gears. Where they have got to be accurate it pays to use the ground hobber, I guess, but for mill work I don't think it does.

E. E. Edmiston: Do you have the hobber in the same location on the gear each time you make the cut, or do you use the full length of the hobber as it becomes dull?

Mr. Davidson: I use the full length. If cutting small gears, why I will start in at one end of the hobber and gradually move across as it gets dull. If cutting large gears, I usually cut about the middle of the hobber.

Chairman: Has anyone something more to add to this discussion?

Member: We cut our ring gear or loom gear, rather, that works in the motor pinion. We have two different

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Contributions on subjects pertaining to cotton, its manufacture and distribution, are requested. Contributed articles do not necessarily reflect the opinion of the publishers. Items pertaining to new mills, extensions, etc., are solicited.

Congressional Control

The Congress of the United States, a body organized by the States for certain specific purposes and given definitely limited powers, has by its passage of the National Wages and Hours Law attempted to assume control over the citizens of the States.

If we spoke more accurately we should say that Congressmen and Senators of the North and Congressmen and Senators of the Middle-West and the West have united in an effort to curb the movement of industries to the South by forcing upon the people of this section certain regulations and restrictions.

The Constitution of the United States was, when adopted, nothing more nor less than an agreement between the States relative to a central or federated organization which was needed to handle certain matters of mutual concern.

The States united for certain purposes but did not intend to surrender unnecessary authority to the central organization. The organization which they intended to set up was to belong to the States and be controlled by them. There was certainly no agreement or understanding that they were to be controlled by the organization which they created.

Section 1, Article 1, of the Constitution says:

> All legislative powers herein granted shall be vested in a Congress of the United States, which shall consist of a Senate and a House of Representatives.

When those who framed the Constitution returned home they found that the above was not satisfactory to the citizens of the sovereign States and in vain they argued that Congress would have no powers other than those granted to it by a vote of two-thirds of the States.

The people demanded greater assurance against Congressional interference or control, just such as Congress is now attempting to exercise, and North Carolina and other States refused to ratify the Constitution or to become a part of the United States until the following was adopted as an amendment and a pledge that the Congress would have no control over the activities of the citizens of the States.

Article X of the amendments known as the "Bill of Rights" said:

> Powers not delegated to the United States by the Constitution nor prohibited by it to the States are reserved to the States, respectively, or to the peoples thereof.

When this was adopted as an assurance, and only then, did North Carolina become a part of the United States. It was part of the agreement between the States and one of the conditions under which North Carolina joined.

Almost from the beginning there were people of some sections who had a desire to regulate the affairs of other sections and to force their standards upon them and the idea that the North and the Middle-West were the guardians of the conduct of the people of the South became a greater factor after the South had been defeated in the Civil War.

After many unsuccessful efforts to regulate so-called child labor in the South, another attempt was made by prohibiting the interstate shipment of goods produced by those of younger ages than certain standards adopted by Congress, but the United States Supreme Court rightly held—

> Congress can not do indirectly that which it has no power to do directly.

The principal of prohibiting interstate shipments of articles made under conditions below standards set by Congress is the basis of the National Wages and Hours Bill, but it goes even further, and gives, to a body created by Congress, policing powers over industries within the States and over the people within such industries.

In Hammer vs. Dagenhart, the Federal Child Labor Law Case, the United States Supreme Court held:

> The evident purpose of the act was not to prohibit interstate commerce in certain class of articles because of some inherently vicious character, but to "standardize the ages at which children may be employed in mining and manufacturing within the States." But the manufacture, the production of goods for interstate commerce, is not in itself interstate commerce but a matter for local regula-

tion. Nor can the constitutional power of Congress over commerce be used to equalize the competitive conditions in the various States.

The above statement was sound law and said in effect that the agreement between the States; that is, the Constitution, expressly prohibited Congress from assuming control over labor within a State and that Congress could not do indirectly that which it had no power to do directly.

In the same decision the United States Supreme Court called attention to the fact that, if the States wished to give Congress control over labor within the States, it could be done by submitting a Constitutional Amendment and getting the approval of three-fourths of them.

An effort to secure such an approval was attempted but failed because the States were unwilling to give Congress any such powers.

The National Wages and Hours Law is an illegal assumption of power by Congress in violation of the agreement under which the sovereign State of North Carolina, and others, ratified the Constitution and became a member of the United States.

English vs. Southern Research

The editor of this journal attended the meeting of Combed Yarn Spinners Association at Gastonia last week and listened with much interest to an address by J. R. S. Goodall, of the Textile Institute of Manchester, Eng.

The address dealt with the need for textile research and the speaker advanced the very worthwhile idea of co-ordination in research programs and the exchange of information between the textile groups of the world.

At the close of the address, those present were invited to ask questions and to express opinions upon textile research and towards the close of that session David Clark arose and the following colloquy resulted:

Mr. Clark—Mr. Goodall, I was in Manchester a few years ago and while there visited your Institute and discussed the general question of textile research. In this country and particularly in the South, we direct our research very largely along practical lines. We seek to learn, for instance, whether one-process or two processes of drawing will give the best result or which setting upon cards will produce the strongest yarn. Almost all of our research is directed towards improving quality or the reduction of the cost of production.

Mr. Goodall—Yes, I have been interested to learn that most of your research has been along such lines.

Mr. Clark—In your country, textile research seems to be directed almost entirely to scientific or highly technical problems such as the diameter of textile fibers or the cellulose content of fibres. You spend very large sums upon such research and I have wondered whether or not the results you have obtained have justified the expenditures.

Mr. Goodall—It seems to me that the excellent position of the textile industry of England answers that question. (Laughter.)

Mr. Clark—Possibly so, but since you have raised the question, I will simply mention the fact that since the World War the Southern States have added approximately 5,000,000 spindles and that during the same years you have been obliged to dismantle mills with approximately 20,000,000 spindles.

We regretted to be forced to make that statement but we feel that the form of research as conducted in the South is far more worthwhile than the highly technical research which has been the hobby and plaything of English cotton manufacturers and we could not allow to go unchallenged the statement that their system of research had greatly benefited their industry.

The English are a fine race of people but possessed of rare egotism and we have yet to meet an English textile manufacturer who did not seem to think that his knowledge of textile manufacturing greatly exceeded those of all others or that the product of his mills and the operation of same was not far better than those in other countries.

A few years ago, while in England, we managed, by a subterfuge, to gain access to the card room of three supposedly fine mills in the Bolton section and were greatly surprised by the lack of cleanliness and the inefficiency of their operation.

We do not hesitate to say that very few Southern superintendents would be content to allow their card room to remain in the condition of either of the three which we visited.

We are entirely in accord with Mr. Goodall's idea about the exchange of research information but, for the good of the textile mills of the South, we wish to see our own research work remain on its present practical lines.

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Mill News Items

WHITMIRE, S. C.—The beam storage department and the machine shop of the Aragon-Baldwin Cotton Mills, local unit, will be greatly enlarged upon the completion of an addition which has been under construction at the mills. This addition will represent a cost of $20,000.

HILLSIDE, VA.—On a branch unit of the Virginia Maid Hosiery Mills, Inc., of Pulaski, Va., work is being pushed forward rapidly. Measuring 110 by 160 feet, the mill building will be one-story. The construction work will represent a cost of more than $75,000.

GRIFFIN, GA.—The Lowell Bleachery, South, is constructing a three-story mill addition, measuring 102 by 110 feet. The construction work is in charge of the Newton Coal & Lumber Company of this place. A new boiler house, measuring 50 by 175 feet, is also under construction. It will be one-story. The construction work and the new machinery set-up will represent a cost of more than $100,000.

ST. PAULS, N. C.—At the St. Pauls Cotton Mills some tests are being made preparatory to placing the mill on spun rayon, it is stated here.

These mills have been engaged in the manufacture of 20's to 30's single and ply carded cotton yarn, monk's cloth and draperies. There are around 32,000 spindles and a battery of 25 looms.

DALTON, GA.—The Novelty Mills, Inc., of New York, which has announced plans for opening a new chenille bedspread manufacturing establishment here about July 1st, for the past 15 years has been engaged in the manufacture of cotton and rayon jacquard spreads, and will continue to manufacture these items as well as the new line. S. Aschear, who has been in the spread business here for several years, will be in charge.

MOORESVILLE, N. C.—Work has been going forward here in renovating a former dwelling by the Mooresville Cotton Mills for the purpose of making it a community building for the operatives and their families of the mills. This large dwelling and the surrounding grounds have been leased by the mills for a period of years for this purpose and the home is being remodeled to suit the needs of the company. Partitions of the rooms have been removed, thus releasing space for a large recreational hall. There will be a reading room, also, class rooms, and a nursing and shower bath rooms.

Mrs. Ernest F. Bohannon, Jr., wife of the secretary and treasurer of the Mooresville Cotton Mills, is in charge of the project. The new recreational center is within two blocks of the mill property, and this is considered an ideal location for a community cnter.

When the building has been put into readiness for the new activities of the mills, the grounds surrounding the home will be cleared off and places arranged for tennis courts, soft ball park and other sport activities.

Mill News Items

CONCORD, N. C.—A dividend of 25 cents a share was declared by Cannon Mills at a meeting of the directors held here. The dividend is payable on July 1st to stockholders as of June 18th.

GREENSBORO, N. C.—A modern office building, which has been just about completed, has been constructed by the Mock-Judson-Voehringer Co., Inc. This new building has been built at a cost of around $20,000, exclusive of electrical work, heating and plumbing. It is one-story, of brick and steel, and measures 50 by 100 feet. The construction work has been in charge of C. M. Guest & Sons of Anderson, S. C., and Greensboro, N. C.

When the office personnel has been moved into the new office, the present office space will be used for storage space in the mill.

LOUISVILLE, KY.—An involuntary petition in bankruptcy was filed in Federal Court here against the Priester Hosiery Mills, Inc., of Paducah. The petitioning creditors were Louisville Textiles, alleging an indebtedness of $11,422.72; the West Kentucky Coal Company of Paducah, $378.65, and Ed. D. Hannan of Paducah, $379.80.

A confession of inability to pay and of willingness to be adjudged bankrupt was attached to the petition, signed by Bascom Jones Priester, president of the hosiery mill. Mr. Priester himself was adjudged bankrupt on May 7th, listing at that time all the assets and liabilities of the firm as his own.

LYERLY, GA.—The new mill, which is being established here as a unit of the Shugart Hosiery Mills of Fort Payne, Ala., is scheduled to get into operation about July 15th.

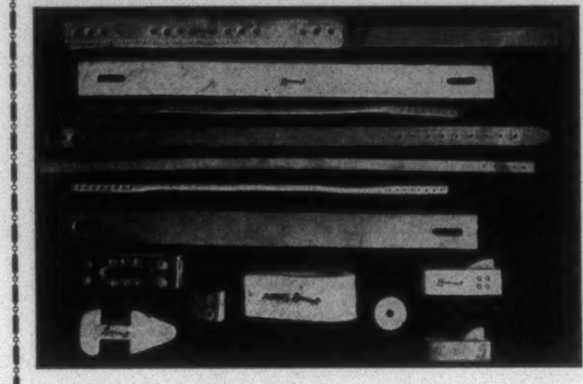
J. S. Owings has charge of the construction work on the new building, which is of modern brick construction. A number of dwellings will also be constructed by Mr. Owings for the operatives of these mills.

The Shugart Hosiery Mills have operated for a number of years at Fort Payne. They are capitalized at $25,000, and at present the payroll of the mills is approximately $1,000 weekly; however, it is planned to increase the capacity as early as possible.

DOTHAN, ALA.—Dothan Silk Hosiery Company, a subsidiary of a nationally known firm, will start immediate construction of a modern plant in this city to represent an initial outlay of approximately $350,000, John Ward, secretary of the Alabama State Chamber of Commerce, announced.

Site for the plant has been acquired at an approximate cost of $6,000, and contract for construction of the first unit of the plant will be let during the month. The initial building will cover 25,000 square feet and represent an outlay of $70,000.

An additional $250,000 will be invested in machinery.



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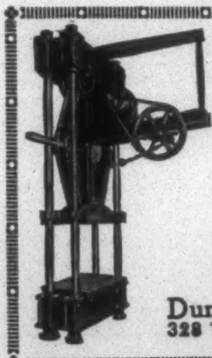

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Northern Master Mechanics Discuss Problems

(*Continued from Page 17*)

sizes, one 148 teeth and the other 159, and we cut them in series, in bunches of ten at one cut. It takes about three hours and forty-five minutes to cut ten of the 148 teeth, while with the 159 teeth it takes about four hours.

And along that same line I might state that we don't make new gears entirely, we just cut the teeth off of the old one and we have a pattern made and we make rings and just put new rings on each gear as it wears out. And those rings, I don't imagine they cost in labor over $1.25 apiece. So that is quite a saving, a saving of eight or nine hundred per cent there, you see.

Member: How do you fasten the rings on the old piece?

Member: With four cap screws.

Chairman: Has anybody else got a question on gears?

R. L. Yates: We couldn't get Mr. Burke, he had a little trouble down at the power plant and I called him the second time. He said he had just crawled out of a boiler and didn't think they would like to see him in that condition, and he had to go in another one. So I asked him a few questions then and I called Mr. Hunt and made arrangements that any of you gentlemen wanting to go down and see our power plant might do so. I asked him if he would talk to you in his black overalls and he said yes, to bring anybody down that wanted to come and he would try to answer any questions asked.

I asked him a few questions there, and the pounds of steam per hour on the average, that is one boiler, would be eighty to ninety-five thousand pounds per hour. And it takes on an average, running full load, 240 thousand pounds of steam per hour.

And a little correction here on the amount of condensation coming back, I wasn't trying to make anything look too bright—but that is what we are getting, we are getting 46% of condensated water back, condensed steam back.

And I asked what the temperature of the fire box was when he was operating it full loaded, and he said it was thirty-one hundred degrees. That is the temperature in where the fire is. We have three boilers. If any of you gentlemen want to go down after the meeting is adjourned, why I will make arrangements to take you out to the power plant and let you look it over.

Chairman: Thank you very much. I am sure that we will take advantage of that offer. Are there other questions?

Mr. Misenheimer: Have any of the gentlemen here had any experience with Roller Stokers?

Chairman: Does anybody have those stokers? Apparently they have not. All of my experience has been with underfed stokers.

William T. Harding, Jr.: I appreciate what Mr. Misenheimer is driving at as to the losses in the steam plant. I think there is a great deal of room for progress along that line in our boiler rooms. I think that with the average boiler that is operated in our plants, generally speaking, the efficiency is terrible. I think that if we would check up and put in the meter equipment that is necessary, we would be astounded to see just how inefficient we are.

I am working on a plan right now, Mr. Misenheimer, whereby we can set up a heating balance on each one of our plants so that we will know not only in B. T. U's. but in percentage of the total B. T. U. in the coal just where our losses are. I am very much interested in it and if you have anything along that line, I would like to see it.

Chairman: Is there any further discussion on this subject? I believe we started off with gears! (Laughter) Are there any further questions on this?

R. A. Flynt: Before we get away from that, I haven't had any trouble with loom pinions but we have recently put in a long draft on old frames, spinning and frames, and we have had considerable trouble there. I wonder if anybody else has had this trouble on long draft spinning frames?

M. W. Hayden: Mr. Chairman, we have made quite a few gears on long draft spinning. We seem to think we have cured it by making them all out of steel. We hardly have any trouble with them now.

Member: Do you case harden them?

Mr. Hayden: No.

Chairman: What steel do you use?

Mr. Hayden: Cold roll steel mostly, but we have used crucible steel, but usually we make them out of cold roll steel.

Chairman: Has anybody else got anything to say about gears? This is an open meeting, whatever you have to say let us hear from yau.

E. T. Davidson: We put in a long draft and the biggest trouble we have had with the long draft, we had twenty pitch and the new spinning is twenty-four pitch, and the boys get hold of the old gears once in awhile and put on a twenty pitch gear and tear the whole train up! (Laughter) So I think if we would throw most of those old things away our troubles would be much less.

Chairman: Are your gears steel or cast?

Mr. Davidson: We have made some of steel and some cast iron. We have had long draft about two years and haven't had any trouble, except that.

M. W. Hayden: Some of you fellows get your castings from a local foundry, I reckon. We do. What percentage of the castings do you lose?

Chairman: Will somebody answer that, what percentage of the castings do you lose? Due to faulty casting, is what you mean?

Mr. Hayden: Yes, sir.

L. W. Misenheimer: We don't lose any, I send it back to them.

Mr. Hayden: But you lose your labor.

Mr. Misenheimer: We check them before we use it.

Mr. Hayden: Lots of times you can't find it unless you match it.

Mr. Misenheimer: I know, but most of the time you find it.

Supervision Of Machinery Lubrication

Chairman: The next question is, "*Should machinery lubrication be under the supervision of the master mechanic?*" That is an important thing. I heard a superintendent say not long ago, I will not call his name, he is not here either, that if the mills could have or would have a good lubrication man in charge of lubrication and equipment they could pay him twenty thousand dollars a year and make a nice profit.

The question is, Should machinery lubrication be under the supervision of the master mechanic?" That is, throughout the plant. Somebody answer that for us.

Mr. Misenheimer: I should say it should, personally.

Member: I should think it should, but it is not.

Chairman: Some of you tell some advantages we would get if we had it supervised by the master mechanic.

G. B. Ward: Well. I think that should depend entirely on the size of the job, on what the mechanic has to do.

Chairman: Does anybody else have anything to say about it?

M. W. Hayden: Mr. Chairman, I will tell you how it is with us. It is not under the master mechanic. The motors and the elevators and the pumps are, the balance of it is up to the room foremen. That is what we do, I don't know whether that is right or not. In some instances, I might agree but in some other cases I wouldn't agree that it should.

Chairman: What about shafting?

Mr. Hayden: That is under the master mechanic.

Chairman: And it should be, that is right.

Mr. Pender: Gentlemen, excuse me for talking again. Last year we had a lubricating engineer, as a matter of fact I went with him through the plant, making studies, for several days there. That is the reason I would say that there are some certain phases of it that should be under the master mechanic.

We went in one department there and the fellow might as well have been using soap. And that reacted back to me, when it is figured up on the standpoint of upkeep and production. Now you leave it up to these various foremen, some of them don't know oil from water. When it comes to what they ought to have they really don't care they say, let the shop worry about it. Well, you would get out of that condition if it was under the master mechanic, because he is interested in more than one way, if for nothing more than to keep labor down. In that way you would get suitable grease.

One place they were using grease that ran the temperature up around 280, they were using something about like Alemite 32, just ordinary greases. Well, we found that condition throughout the plant. They were having trouble until they got the proper grease.

E. E. Edmiston: At our place, all the requisitions for greases and oil go through my office. We are trying to make some oil tests, to try to find out what oils are best suited for the different machines. I think the mechanic is in better position to know what oils should be used on the different machines than a lot of overseers. The overseer sees possibly the results from his own room, but the mechanic catches the dickens from all the rooms if something gets wrong.

I really believe that the lubrication should come under the supervision of the master mechanic, because he has to make all the repairs.

Chairman: Has anybody else anything to say on the subject of lubrication? It is a very important thing.

Mr. Hayden: This might be interesting to some of the fellows; we only have finishing plant at our two mills, and getting back to the oiling question, we have quite a long line of shafting in our napping department. Several years ago we were using all sorts of oil on this shafting and would oil every few days; now we oil it once a year and forget it.

Chairman: Is there anything further?

Member: I would like to ask him what kind of oil he is using?

Mr. Hayden: It is a non-fluid oil.

Mr. Misenheimer: I suppose it is due more to the bearings used than to the oil?

Mr. Hayden: Yes, sir. Now it wouldn't be like that in a card room.

Mr. Yates: I would just like to say one more thing about this lubrication. I will tell you how we handle it at the White Oak mill. We all work together on that. It is not under any individual supervision. But Mr. Ward here, the master mechanic—if a fellow fails why he gets to fix it, if anything is wrong. But the way we are doing it, we take the second hand in each department, some places we have got as high as five second hands in one department, and we let that fellow assume that it is his own little mill and he looks after that and sees that the oiling and everything is kept up in that one department.

Now in the weaving room there are five second hands on one shift. In other words, we assume that it is five little weaving rooms and each second hand looks after that one plant. The overseers, of course, are over him and then comes the superintendent and the other fellows, and if anything goes wrong the second hand reports it to the overseer and then we all get in there together and work it out. If the oiling is not right, we call in a lubrication expert and find out what is wrong and what is the proper lubrication and see that it is done properly.

Chairman: Has anybody else anything to say on this subject? Mr. Queen, what do you think about this, do you want to take on some extra work?

G. C Queen: I think the master mechanic should have supervision of the lubrication, whether he has the actual work or not. You can hardly expect the master mechanic to look after his job and 25 oilers in the mill. If an oiler is in the mill oiling, the master mechanic can't see him. I find from experience that a cheap oiler is the hardest job a master mechanic ever has in a mill. (Applause)

Chairman: Has anybody else got anything to say on this?

Member: I want to tell you what happened with me one time in our mill. This poor fellow was a mighty fine man, but we had a lot trouble in our picker department

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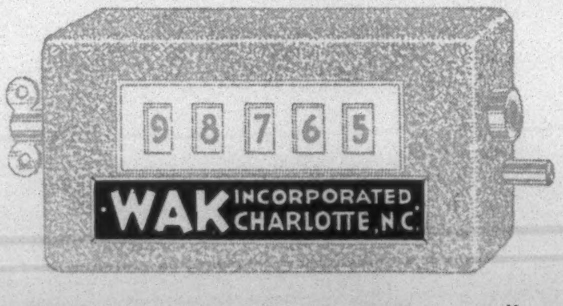

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and he finally told me, "You get a good oiler for that job and pay him well." And I did and after that we had no more trouble in our picker room and that solved a lot of our troubles. If we had men like that it would stop a lot of our troubles, that kind of men oiling.

Chairman: Has anybody else got anything to say about oiling. Let's thrash this out thoroughly while we are at it, just like we did the gears.

If there are no further questions, we will assume that the master mechanic should have supervision of it, but not direct charge of it; is that what the general feeling is? That he should be consulted, is that right?

Mr. Yates: I think he should be brought in. In other words, if any part is getting undue wear, then I think the master mechanic should be called in and then it would be corrected. And I might say here, that our electric department looks after the oiling of the motors, but other than that why each department has its own oiling.

Chairman: In our plant we don't have supervision of it, but we do keep an eye on it and do co-operate with the other men. We have very good success that way. However, it is not an ideal way. I don't know if anybody has an ideal way.

Mr. Hayden: I want to ask how often is it necessary to oil motors in carding and spinning?

Chairman: That is a good question.

J. W. Norris: I will answer that in just a few words—as needed.

You can't have any particular time when one motor will require oiling.

Mr. Queen: I have a system on my motors of a gravity feed sight oil cup. We can walk along one floor and see our motors and tell whether they need oil or not and we find that a saving in labor and amount of oil. I figure they pay for themselves in the course of a couple of years. We have a lot of overhead motors. I find you can walk through the plant and just walk along and look at the motors and tell whether they need oil or not. My electrician oils the motors. I find he gets over them in about one-fourth the time that he formerly did.

Chairman: Is there any further discussion on the question of oiling?

Member: I think those sight feed oilers on motors are a great thing. I have them on my motors. We do not have any trouble with them.

A. T. Lewis: There is one question I would like to ask about that oiling of the motors: What kind of drives do you have?

Mr. Queen: Every kind. I have a little over a hundred motors and I have got some of the original old motors that General Electric started out with. Then I have some of the latest style motors.

Mr. Lewis: Do you think this oiling system works good on Rockwood drives?

Mr. Queen: Yes, sir. You have to set it a little bit lower on the Rockwood than you would on a stationary motor, on account of the vibration. It will feed the oil too fast, if you don't watch it. You have to find out just how much you will have on the motor, by the belt jerking it up.

Chairman: Is there anything else on the subject of oiling?

O. L. Shumate: What about the blowing of them? We are in the cotton mill there with spinning and carding, also in dyeing; we find we have to blow our motors regularly once a week. And along with that, the man blows them and checks the oil and refills them. I would like to have some information on that, what you think of that?

Chairman: Has anybody got anything to say about cleaning and oiling them at the same time?

It sounds like a pretty good idea to me.

Mr. Shumate: That is what we do all the time. We check the carding twice a week and there is where I find the majority of the losses of your motors, the oil getting out of gears and then getting down and dragging.

Chairman: One thing I would like to ask you on that, where you have the belt drives, do you have any trouble with the belts coming off and knocking those oilers off?

Mr. Queen: I experienced that when I put them on the first one, but now I pipe my bearing around to the side of the motor and set those cups around there. If the belt breaks, all right, because the motor shields it. I don't fasten it on the frame itself, I fasten it on the edge. I put it there to get it out of the way of the belts.

Chairman: Has anybody else got anything to say about oiling?

(*Continued next week*)

Texas Textile Graduates Find Jobs

Lubbock, Tex.—Maintaining a record established by the first graduating class of the textile engineering department of Texas Technological College, all nine of the 1938 June graduates have been placed in textile mills in the South.

Graduates and their positions are as follows: Dwight Epperson, of Cleburns, Avondale Mills, Sylacauga, Ala.; Frank Eddins, of Marlin, Love Field Mill of the Texas Textile Mill Company, Dallas; W. C. Zerwer, of Clovis, N. M.; Darrell Branton, of Ralls, and Woodrow Davidson, of Portales, N. M., Bibb Manufacturing Company, Columbus, Ga.; Kendall Onstott, of Lubbock, William H. Jones Company, Dallas; Milton Hallmark, of Loraine, New Braunfels Textile Mills, New Braunfels; Charles Wilson, of Tulia, Dixie Mercerizing Company, Chattanooga, Tenn.; and Jack Towery, of Plainview, Brenham Cotton Mills, Brenham, Tex.

At the twelfth annual commencement exercises June 6th, Onstott received the National Association of Cotton Manufacturers' medal awarded each year to the student showing highest excellence in textile engineering.

$1,000,000 Order for Cloth Placed

Birmingham, Ala.—Brooks Comer, Alabama textile industrialist, said here recently that J. H. McCormick, of the Big Ace Corporation at Athens, Ga., had arranged for purchase of $1,000,000 worth of denim cloth from the Avondale and other textile mills in this area. The cloth would be purchased under a five-year contract, Comer said.

Textile plants at Alexander City, Sylacauga and Talladega also would be affected.

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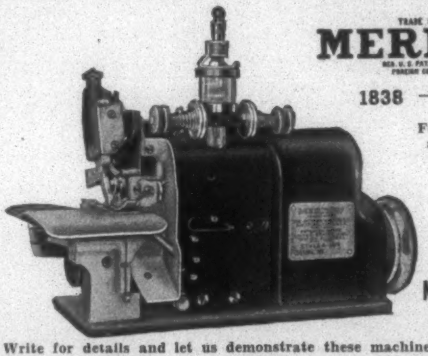

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Address "XXX" c/o Textile Bulletin

Urge Erection of New Cotton Houses in Mill Communities

The Cotton-Textile Institute is encouraging cotton mills to purchase and erect in their own communities one of the latest models of the new cotton house.

Complete plans and specifications of this cotton house have been sent to the various mill executives. While the exact price cannot yet be stated, the institute is in a position to guaranttee a delivered price not in excess of $2,500, not including the relatively small additional cost of erection. Once mass production is under way, the price can be still further reduced, the institute states. "We eventually hope to deliver this house or its equivalent, for $2,000 or less."

"The houses are of a type which can be easily demounted and moved without injury or substantial expense, it is stated.

"The promotion of these houses has a broader purpose than the sale of a particular type of house which utilizes cotton. This broader purpose is to demonstrate the practicability of fabric-covered purposes in all kinds of house construction.

"Interior walls and panelings in all kinds of homes can be made of cotton surfaced materials in the interest both of greater beauty and serviceability."

New Finishing Agent

A new finisihng agent designed primarily for use on acetate and rayon fabrics is announced by the du Pont Company. Known as "Avitex" R, it is also employed to some extent on cotton materials, and it is of interest on raw stock to improve the spinning properties. It is said to possess an advantage in exhausting from solution from a long bath onto the fiber and in being resistant to subsequent rinsing, giving a soft, full finish. It is also resistant to hard water, hot ironing, and hot calendering, and is stable under storage conditions.

The finish is said to leave materials free from odor and not discolored, and has no deleterious effect on the light fastness or on the shade of dyestuffs, a factor of importance in finishing synthetic fiber materials.

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ACCOUNTS WANTED BY MANUFACTURERS' AGENT
Can handle several additional textile mill equipment and supply accounts in connection with present lines. Formerly superintendent of large Southern mill and am widely acquainted with textile mill executives in the South. Give full particulars. Address "Agent," care Textile Bulletin.

Modern Textile Air Conditioning

(*Continued from page 6*)

twisted in a tiny spiral about its own axis.

In production, humidities of at least 40 per cent must be maintained to eliminate static electricity which is obviously very objectional. Humidity likewise increases the pliability and yielding ability of the cotton fibers, but strangely enough, weakens the strength of the individual fiber. The fact that increased humidity produces a stronger yarn is accounted for by the fact that the waxy coating of the fiber is softened by the moisture with a consequent increase in surface friction between the fibers.

Obviously damp cotton cannot be cleaned as easily as dry cotton because the dust and dirt cannot be easily separated from the fibers by the picker. In the baled state, cotton contains from 8% to 12% regain but in the picker room it should contain only 4% to 5½%; however, drying in the opening room and in transit to the condensers and pickers is sufficient to lower this moisture content. In the card room static electricity is fatal to efficient processing and the humidity must be kept above 40%, but to insure pliability and lower the tendency to form lint, the conditions are kept around 45% to 55% relative humidity at 70° to 75° F. In drawing and roving, the relative humidity is generally a little higher, ranging from 50% to 60%. This insures eveness of the sliver and in the roving, a minimum twist. Roving can be run at a lower relative humidity, but since it is much harder to set the twist, it is necessary to run the machine slower and this is costly over a period of time. In spinning, from the standpoint of production, 55% to 60% relative humidity is sufficient since it insures the necessary pliability to take the draft and twist well, but 60% to 65% is better for regain. Uniform conditions are of great importance in spinning, since varying conditions affect the speed of the machine, the draft, strength of the fiber, and regain. In weaving relative humidities are maintained up to 80% because the cotton yarn becomes stronger up to this percentage. Naturally all the strength of the yarn is needed to supplement the size in resisting the abrasion of the reeds and stop motion. Sometimes humidities up to 90% are used to lessen the size and dust in the air.

The larger mills almost invariably use a conditioning room to condition their filling before weaving. These rooms are tightly sealed and yarns placed in them at about 100° F. and 95% relative humidity are "aged" in a few hours where formerly they took weeks. This warm, highly humid condition sets the twist and eliminates the kink. This process is particularly valuable for yarns to be used in knitting.

Modern industrial air conditioning, in addition to developing effective cooling by evaporation, has made another great advancement for the textile industry. Fly and lint in the air of drawing and spinning rooms has always been objectionable, and much time and money has been spent in trying to relieve this condition. As drawing and spinning machinery has been improved with super and long draft, there has been an increase of fly and lint in the air. The complete industrial air conditioning unit will have some means of removing this lint; by an air filter or automatic doffing condenser.

The belief that high humidity will rust knitting needles has persisted for many years. Although actual wetting of silks or rayons in process will do great damage, humidities of 65% can easily be maintained without injury to either the machines or the product if the air conditioning equipment is carefully designed and installed. Actually, this humidity is very effective in maintaining the pliability of the yarn in throwing, in killing the static electricity in all processes, particularly in dressing, in affording both uniform conditions and cooling in spinning, and in maintaining a regain of at least 11% in weaving, which effectively aids in combatting abrasion.

Wool is usually carded with an oil emulsion. Humidity helps to maintain the pliability imparted to the wool by this emulsion. Even in the case of dry tops, humidity prevents brittleness and "starey" yarn. In spinning and weaving, *controlled* humidity is essential because too much humidity will produce clinging roping, lean yarn, or high warp tension, resulting in ends down. Likewise, too little humidity will produce brittleness, abrasion, static electricity, a beardy yarn, and excessive fly.

We have largely taken note of the effect of *humidity* upon the product. As has previously been noted, humidity is a function of heat and would consequently be intimately associated with both heating and cooling. Heating has long been a necessity and consequently methods of heating have reached maturity long before general air conditioning. Cooling is fast becoming a necessity not only because of its bearing on humidity but also because of the effect on the efficiency and comfort of mill operatives.

It has previously been noted that cleaning the fly and dust from the air is essential in certain instances and it

(*Continued on Page 30*)

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For Fast Action
Use
TEXTILE BULLETIN
Want Ads

Cotton Goods Markets

New York.—Stimulated by heavy Government buying of cotton goods for relief purposes early last week and by larger sales of piece goods and apparel at retail as a result of higher temperatures over most of the country, cotton gray goods markets turned upward suddenly Friday, sales for the day aggregating about 10,000,000 yards. The sharp increase in buying brought sales for the week to about 200 per cent of the present curtailed production of mills.

Buyers included both large and medium-sized converters. Included among the operators were a number of converters who did not participate in the competition for Government contracts, thus indicating that their stocks were running low and were in need of replenishment. Prices on the active constructions were marked up on an average of ⅛c a yard. In addition, mills refused to sell into the summer months at current prices, restricting sales to the movement of stock goods alone.

Bag manufacturers also showed more interest and picked up odd lots of sheetings. Inquiry for these goods was brisk enough to indicate that sales next week are likely to run into considerable volume. Drills, osnaburgs and other weaves were a trifle more active. Combed goods were featureless aside from increased inquiry for combed broadcloths.

If cotton values hold at or near present levels it is quite probable that the buying movement which started will continue well into next week.

Print cloths, 27-in., 64x60s	3½
Print cloths, 28-in., 64x60	3⅝
Gray goods, 38½-in., 64x60s	4¼
Gray goods, 39-in., 80x80s	6¼
Tickings, 8-ounce	15½
Denims, 28-in.	11
Brown sheetings, standard	9¾
Brown sheetings, 4-yard, 56x60s	5⅛
Brown sheeting, 3-yard	6⅛
Staple ginghams	10

J. P. STEVENS & CO. Inc.
Selling Agents
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Cotton Yarn Markets

Philadelphia— The drop in prices in the cotton market for the past week has had the effect of causing some buyers to shy off for the present, and other buyers to attempt to force the price of sale yarn below its present level, which is unprofitable in most cases.

Some spinners, yielding to this pressure, have eased their prices somewhat, but this has not been general as yet, and it is to be presumed that there can be no general lowering of present prices except in the case of yarns made from the lower grades of cotton, and in the courser counts. The best grades of cotton are still selling at a premium, and spinners can hardly be expected to go lower than present levels on the finer counts, of best cotton.

It is still too early to make any definite prediction of the yield of the new cotton crop, and opinions differ widely on the possibilities. Some observers believe that the new crop will be above the 10 year average, while others say that there is indication of excessive weevil activity in some sections and bad weather conditions in other sections that will lower the expectations.

Bidding on business offered by the Government has disclosed prices below expectation, including those quoted by bidders on standard constructions of fabrics or garments for which conformance to Federal specifications is required. This indicates that contractors must have obtained very low prices when inquiring for the cotton yarn for these items, but selling agents of the yarn mills furnishing some of this yarn contend their asking prices for commercial transactions remain unchanged.

If so, this would mean that a few preferred customers are being given access to some good grade cotton yarn at market concessions, as compared with what the average customer is still being quoted.

Southern Single Skeins

8s	16½
10s	17
12s	17½
14s	18
20s	19
26s	22
30s	24
36s	27
40s	28½

Southern Single Warps

10s	17
12s	17½
14s	18
16s	18½
20s	19
26s	22
30s	24
40s	28½

Southern Two-Ply Chain Warps

8s	17
10s	17½
12s	18
16s	19
20s	20
24s	22
26s	23
30s	24
36s	28
40s	29

Southern Two-Ply Skeins

8s	17
10s	17½
12s	18
14s	18½
16s	19
20s	20
26s	23
30s	24
40s	29

Two-Ply Plush Grade

12s	18½
16s	20
20s	20½
30s	25½

Duck Yarns, 3, 4 and 5-Ply

8s	17½
10s	18
12s	18½
14s	19
16s	19½
20s	20

Carpet Yarns

Tinged, 5-lb., 8s, 3 and 4-ply	15
Colored strips, 8s, 3 and 4-ply	15
White carpets, 8s, 3 and 4-ply	17

Part Waste Insulated Yarns

8s, 1-ply	14
8s, 2, 3 and 4-ply	14½
10s, 2 ,3 and 4-ply	15
12s, 2-ply	15½
16s, 2-ply	16½
20s, 2-ply	18

Southern Frame Cones

8s	16½
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14s	18
16s	18½
22s	20½
24s	21½
26s	22½
28s	23½
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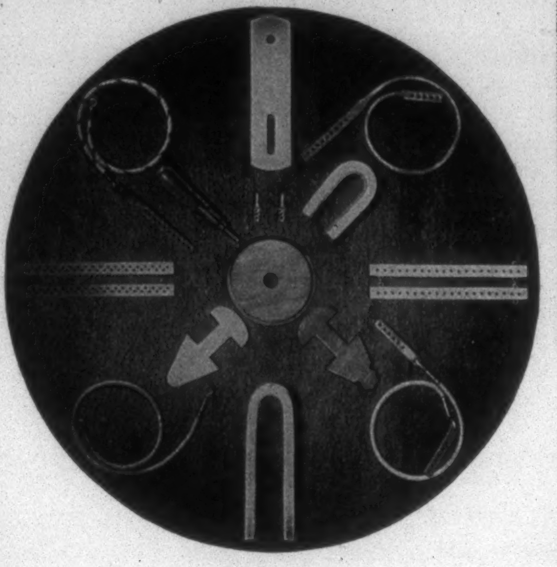

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SYNTHETIC CHEMICALS FOR BETTER TEXTILE FINISHING

Modern Textile Air Conditioning

(Continued from Page 27)

is desirable in all stages of production. As was noted particularly in the case of woolens and silk, accurate control of conditions is a requisite to efficient and high quality production. Naturally such control is impossible in the instance of chance ventilation, consequently there must be an accurate control of outside ventilation in proportion to recirculated air. Air change is intimately connected with cooling. Cooling is blood kin to heating and humidity, consequently all of the elements of air conditioning are interdependent and successful air conditioning depends on the accurate control of each element.

Nearly every branch of modern industry is in quest of smaller units of less complexity which will fulfill their job at a lower operating cost and will permit greater flexibility. The future development of industrial air conditioning will undoubtedly be along these lines. Progress toward this goal is dependent upon the clear thinking and foresight of our engineers and upon the rapidity with which the textile industry will recognize the necessity of complete and efficient air conditioning in modern production.

Production of Argentine Goods Increased Sharply in 1937

Washington, D. C.—The Argentine rayon-weaving industry established a record for production in 1937, according to statistics reported to the Department of Commerce. Production of rayon goods in Argentina in 1937 amounted to 3,517,501 kilos, recording sharp gains over the estimated production of 2,313,756 kilos in 1935 and 3,124,253 kilos in 1936, the report said.

In 1936 there were 305 silk factories in Argentina with a total of 3,143 looms and, although it was indicated that the number of these establishments increased in 1937, no definite statistics were given for that year.

Because of the increased production and the recession that began in Argentina in the latter part of the year, the local market was unable to absorb all of the rayon-weaving industry's output in 1937. This overproduction necessitated some adjustments in the industry and it was doubted whether the 1938 production in this line would reflect a continuation of the previous upward trend.

Data Obtained On New Hollow Core Acetate Staple Fiber

The development of an acetate rayon staple fiber with a hollow core by the German Chemical and Dye Trust, I.G. Farbenindustries A.G., with special advantages claimed for it in covering power and warmth revives some of the interest here which had been shown in the possibility of a hollow filament staple.

The new product, recently shown in Germany, is known as "Lufthaltige Acetafaser." Information obtained reveals that this fiber has a specific gravity of 1, which makes it the lightest textile fiber produced. This compares with 1.32 for regular acetate rayon staple fiber and 1.52 for viscose process rayon staple fiber. It is declared to be lighter than silk or wool.

Good insulating qualities are held for this new staple fiber, it being pointed out that inasmuch as it is the entrapped air which makes the average fabric warm, this particular fiber has the air permanently trapped in the fiber itself.

Yarns of this acetate rayon staple are said to have good covering power, particularly in view of the light specific gravity. Information from abroad describes the product as soft and full. Its use in knitting yarn is reported as one of the applications of it.

Other information from abroad credits it as being "washable and fast to boiling." It is said to wash in mixtures with wool with little in the way of felting or fulling qualities.

This is not the first word of a hollow filament staple fiber but if the sketchy information available from Germany is correct, it seems to be the first hollow filament acetate staple to be actually marketed. Celta, hollow filament viscose process continuous filament rayon yarn has been sold for many years. Reports from England some time ago reported hollow filament rayon staple fibers, at least one of which was made by a discontinuous method of producing the fiber. What the present status of these staples is does not appear to be very clear. There seems to be no reference to their presence in descriptions of staple fiber fabrics sold in England at present.

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NEW ENGLAND BOBBIN & SHUTTLE CO.
NASHUA NEW HAMPSHIRE
SOUTHERN REPRESENTATIVE—D.C.RAGAN HIGH POINT, N.C.

A central canal is present in a number of natural fibers used in textiles, whether its presence in spun rayon is of advantage is not yet known here. It is possible that the sought for results may be achieved in the fabric other than by making it hollow. Reports in the trade as to the reasons why the hollow filament continuous glament rayon yarns are not made here include two which may also affect hollow acetate staple fibers and that is in certain yarn constructions the air chambers tended to collapse and the other, and probably more important one, was that the yarns did not have sufficient strength.

It is possible that this new acetate staple may have similar disadvantages which outweigh the claimed-for advantages, but it does show very clearly that research is being put into the spun rayon business to develop more and new staple fibers.

According to one local spinner, if domestic producers could produce a hollow filament acetate rayon staple fiber, it would not necessarily have to have great tensile strength if used for knitting. More spun rayon could be used for knit fabrics, particularly sweaters if the fabrics did not have such a weighted character as at present, he said.

Cottons Institute Denies Wage Plan

Washington.—Newspaper reports that the Cotton-Textile Institute had offered Congressional leaders a wage and hour plan was denied June 2nd by Dr. Claudius T. Murchison, president of the Institute.

Washington papers carried an announcement that the Cotton-Textile Institute had suggested that wage and hour conferes adopt a permanent 30-cent per hour scale and a 40-hour week, which would have the effect, if approved, of setting up a differential of 10 cents per hour as compared with Northern wage rates without including the differential plan in the pending bill.

In denying the newspaper reports, Dr. Murchison made the following statement:

"Newspaper statements to the effect that the Cotton-Textile Institute has 'offered Congressional leaders . . . a compromise proposal on wage-hour legislation' were a complete surprise to Institute officials and were unauthorized. The Cotton-Textile Institute has made no compromise offers in connection with wage-hour legislation and does not intend so to do."

Data Given On New Standard Size of Knit Section Beam

The new standard size section beam being offered for high speed tricot knitting machines is now 14 inches wide and with a 14-inch flange, it was stated at Robert Reiner, Inc.

In knitting 28-guage cloth, each section beam delivers 14x28 ends or 392 ends per beam. A 160-inch knitting machine holds 12 section beams. The beam, which has aluminum flanges empty, weighs 8½ pounds. With yarn it carries 10,000 yards from each of 392 ends of 50 denier 18 filament six turns viscose process rayon. The net weight of the yarn on the beam is 50½ pounds which still leaves about one-half inch clearance from the top of the flange of the beam. Twelve section beams required for one of the machines will therefore carry about 600 pounds of yarn.

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Southern Sources of Supply

For Equipment, Parts, Material, Service

Following are the addresses of Southern plants, warehouses, offices, and representatives of manufacturers of textile equipment and supplies who advertise regularly in TEXTILE BULLETIN. We realize that operating executives are frequently in urgent need of information, service, equipment, parts and materials, and believe this guide will prove of real value to our subscribers.

ABBOTT MACHINE CO., Wilton, N. H. Sou. Agt., L. S. Ligon, Greenville, S. C.

ACME STEEL CO., THE, 2840 Archer Ave., Chicago, Ill. Sou. Sales Offices: Georgia—Atlanta, Acme Steel Co. of Ga., Inc., 603 Stewart Ave.; F. H. Webb, Mgr., 1281 Oxford Rd., N. E.; C. A. Carrell, 2135 Cascade Rd., S. W. North Carolina—Charlotte, F. G. German, 1617 Beverly Drive. South Carolina—Greenville, G. R. Easley, 107 Manly St. Tennessee—Signal Mountain, W. G. Polley, 802 James Blvd. Florida—Orlando, R. N. Sillars, 605 E. Gore Ave. Louisiana—New Orleans, J. C. Brill, 518 Gravier St.

AKRON BELTING CO., Akron, O. Sou. Branches, 903-905 Woodside Bldg., Greenville, S. C.; 390 S. Second St., Memphis, Tenn.

ALLIS-CHALMERS MFG. CO., Milwaukee, Wis. Sou. Sales Offices: Atlanta, Ga., Healey Bldg., Berrien Moore, Mgr.; Baltimore, Md., Lexington Bldg., A. T. Jacobson, Mgr.; Birmingham, Ala., Webb Crawford Bldg., John J. Greagan, Mgr.; Charlotte, N. C., Johnston Bldg., William Parker, Mgr.; Chattanooga, Tenn., Tennessee Electric Power Bldg., D. S. Kerr, Mgr.; Cincinnati, O., First National Bank Bldg., W. G. May, Mgr.; Dallas, Tex., Santa Fe Bldg., E. W. Burbank, Mgr.; Houston, Tex., Shell Bldg., K. P. Ribble, Mgr.; New Orleans, La., Canal Bank Bldg., F. W. Stevens, Mgr.; Richmond, Va., Electric Bldg., C. L. Crosby, Mgr.; St. Louis, Mo., Railway Exchange Bldg., C. L. Orth, Mgr.; San Antonio, Tex., Frost National Bank Bldg., Earl R. Hury, Mgr.; Tampa, Fla., 415 Hampton St., H. C. Flanagan, Mgr.; Tulsa, Okla., 18 North Guthrie St., D. M. McCargar, Mgr.; Washington, D. C., Southern Bldg., H. C .Hood, Mgr.

ALROSE CHEMICAL CO., Providence, R. I. Sou. Rep., A. M. Burt, 1701 N. Elm St., Greensboro, N. C.

AMERICAN BLOWER CORP., Detroit, Mich. Sou. Offices: Court Square Bldg., Baltimore, Md.; 1211 Commercial Bank Bldg., Charlotte, N. C.; Rooms 716-19 101 Marietta St. Bldg., Atlanta, Ga.; 846 Baronne St., New Orleans, La.; 1005-6 American Bldg., Cincinnati, Ohio; 619 Mercantile Bldg., Dallas, Tex.; 201 Petroleum Bldg., 1314 Texas Ave., Houston. Tex.; 310 Mutual Bldg., Kansas City, Mo.; 620 S. 5th St., Architects & Bldrs. Exhibit Bldg., Louisville, Ky.; 1433 Oliver Bldg., Pittsburgh, Pa.; 7 North 6th St., Richmond, Va.

AMERICAN CASABLANCAS CORP., Johnston Bldg., Charlotte, N. C. Warehouse, 1000 W. Morehead St. F. Casablancas and J. Casablancas, Executives; J. Rabasa, Technical Expert.

AMERICAN COOLAIR CORP., Jacksonville, Fla. J. E. Graves, Jr., secretary-treasurer. Factory ventilating engineer, Clark R. Trimble, 205 Cottage Place, Charlotte, N. C.

AMERICAN CYANAMID & CHEMICAL CORP., 30 Rockefeller Plaza, New York City. Sou. Office and Warehouse, 822 W. Morehead St., Charlotte, N. C.; Hugh Puckett, Asst. Sou. Sales Mgr.

AMERICAN ENKA CORP., 271 Church St., New York City. Sou. Rep., R. J. Mebane, Asheville, N. C.

AMERICAN MOISTENING CO., Providence, R. I. Southern plant, Charlotte, N. C.

AMERICAN PAPER TUBE CO., Woonsocket, R. I. Sou. Rep., Ernest F. Culbreath, P. O. Box 11, Charoltte, N. C.

ARMSTRONG CORK PRODUCTS CO. (Textile Division). Lancaster, Pa. Sou. Office, 33 Norwood Place, Greenville, S. C. T. L. Hill.

ARNOLD, HOFFMAN & CO., Inc., Providence, R. I. Frank W. Johnson, Sou. Mgr., Box 1268, Charlotte, N. C. Sou. Reps., Robert E. Buck, Box 904, Greenville, S. C.; Harold T. Buck, 1615 12th St., Columbus, Ga.; W. Chester Cobb, Hotel Russell Erskine, Huntsville, Ala.; D. Floyd Burns, Jr., Box 198, Durham, N. C.

ASHWORTH BROS., Inc., Charlotte, N. C. Sou. Offices, 44-A Norwood Place, Greenville, S. C.; 215 Central Ave., S. W., Atlanta, Ga.; Texas Rep., Textile Supply Co., Dallas, Tex.

ATLANTA HARNESS & REED MFG. CO., Atlanta, Ga. Succeeded by Steel Heddle Mfg. Co., Atlanta Division. (See this company's listing.)

BAHNSON CO., THE, Winston-Salem, N. C. North and South Carolina Rep., S. C. Stimson, Winston-Salem, N. C. Sou. Rep., I. L. Brown, 886 Drewery St., N. E., Atlanta, Ga. Northern Rep., F. S. Frambach, 703 Embree Crescent, Westfield, N. J. Western Rep., D. D. Smith, 906 W. Lovell St., Kalamazoo, Mich.

BANCROFT BELTING CO., Boston, Mass. Sou. Rep., Ernest F. Culbreth, 602 Commercial Bank Bldg., Charlotte, N. C.; Herbert Booth, Claridge Manor Apt., Birmingham, Al.a

BARBER-COLMAN CO., Rockford, Ill. Sou. Office, 31 W. McBee Ave., Greenville, S. C., J. H. Spencer, Mgr.

CHARLES BOND CO., 617 Arch St., Philadelphia, Pa. Sou. Reps., Harold C. Smith, Greenville, S. C.; Harold C. Smith, Jr., Greenville, S. C.; John C. Turner, P. O. Box 1344, Atlanta, Ga.

BORNE, SCRYMSER CO., 17 Battery Place, New York City. Sou. Mgr., H. L. Siever, P. O. Box 1169, Charlotte, N. C. Sales Reps., W. B. Uhler, 608 Palmetto St., Spartanburg, S. C.; R. C. Young, 1216 Kenilworth Ave., Charlotte, N. C.; John Ferguson, 303 Hill St., LaGrange, Ga.

BROWN CO., DAVID, Lawrence, Mass. Sou. Reps., Ralph Gossett, Woodside Bldg., Greenville, S. C.; William J. Moore, Woodside Bldg., Greenville, S. C.; Belton C. Plowden, Griffin, Ga.; Gastonia Mill Supply Co., Gastonia, N. C.; Russell A. Singleton Co., Inc., Dallas, Tex.

BUTTERWORTH & SONS CO., H. W., Philadelphia, Pa. Sou. Rep., J. H. Zahn, Johnston Bldg., Charlotte, N. C.

CAMPBELL & CO., JOHN, 75 Hudson St., New York City. Sou. Reps., M. L. Kirby, P. O. Box 432, West Point, Ga.; Mike A. Stough, P. O. Box 701, Charlotte, N .C.; A. Max Browning, Hillsboro, N. C.

CAROLINA REFRACTORIES CO., Hartsville, S. C.

CHARLOTTE CHEMICAL LABORATORIES, Inc., Charlotte, N. C.

CHARLOTTE LEATHER BELTING CO., Charlotte, N. C.

CIBA CO., Inc., Greenwich and Morton Sts., New York City. Sou. Offices and Warehouses, Charlotte, N. C.

CLINTON CO., Clinton, Iowa. Luther Knowles, Sou. Agt., Box 127, Telephone 2-2486, Charlotte, N. C. Sou. Reps., Grady Gilbert, Telephone 1132, Concord, N. C.; Clinton Sales Co., Inc., W. T. Smith, 2 Morgan Bldg., Greenville, S. C.; Lee Gilbert, Box 481, Tel. 2913, Spartanburg, S. C.; A. C. Boyd, 1071 Bellevue Drive, N. E., Tel. Hemlock 7055, Atlanta, Ga.; Dana H. Alexander (Mill and Paper Starch Div.), Birmingham, Ala. Stocks carried at Carolina Transfer & Storage Co., Charlotte; Consolidated Brokerage Co., Greenville, S .C.; Atlanta Service Warehouse, Atlanta.

COOLING & AIR CONDITIONING CORP., THE, 101 Marietta St., Atlanta, Ga., J. C. Marlow, Mgr.; 708 Guilford Bldg., Greensboro, N. C., A. B. Wason, Mgr.

CROMPTON & KNOWLES LOOM WORKS, Worcester, Mass. Sou. Plant, Charlotte, N. C.

CUTLER, ROGER W., 141 Milk St., Boston, Mass. Sou. Office, Woodside Bldg., Greenville, S. C. Southern Tape Agent: Byrd Miller, Woodside Bldg., Greenville, S. C. Roll Agents: Dixie Roller Shop, Rockingham, N. C.; A. J. Whittemore & Sons, Burlington, N. C.; Dixie Roll & Cot Co., Macon, Ga.; Morrow Roller Shop, Albemarle, N. C.; Greenville Roll & Leather Co., Greenville, S. C. Take Up Roll Agent: M. Bradford Hodges, Box 752, Atlanta, Ga.

DARY RING TRAVELER CO., Taunton, Mass. Sou. Rep., John E. Humphries, P. O. Box 843, Greenville, S. C.; Chas. L. Ashley, P. O. Box 720, Atlanta, Ga.

DAUGHTRY SHEET METAL CO., Charlotte, N. C.

DENISON MFG. CO., THE, 145 Lyman St., Asheville, N. C. Sou. Rep., L. B. Denison, Genl. Mgr.

DILLARD PAPER CO., Greensboro, N. C., Greenville, S. C., Charlotte, N. C.

DRAKE CORP., Norfolk, Va.

DRAPER CORPORATION, Hopedale, Mass. Sou. Rep., E. N. Darrin, Vice-Pres.; Sou. Offices and Warehouses, 242 Forsyth St., S. W., Atalnta, Ga., W. M Mitchell; Spartanburg, S. C., Clare H. Draper, Jr.

DU PONT DE NEMOURS & CO., Inc., E. I., Organic Chemicals Dept., Dyestuffs and Fine Chemicals Div., Wilmington, Del. John L. Dabbs, Sou. Sales Mgr.; D. C. Newman, Asst. Sou. Sales Mgr.; J. D. Sandridge, Asst. Sou. Sales Mgr.; E. P. Davidson, Asst. Mgr. Technical. Sou. Warehouses, 414 S. Church St., Charlotte, N. C. Reps., C. H. Asbury, H. B. Constable, J. P. Franklin, J. F. Gardner, L. E. Green, M. D. Haney, W. R. Ivey, S. A. Fettus, A. W. Picken, N. R. Vieira, Charlotte Office; J. T. McGregor, Jr., James A. Kidd, 1035 Jefferson Standard Bldg., Greensboro, N. C.; John L. Dabbs, Jr., G. H. Boyd, 804 Provident Bldg., Chattanooga, Tenn.; R. D. Sloan, T. R. Johnson, Greenille, S. C.; W. F. Crayton, Adam Fisher, Jr., W. A. Howard, Columbus, Ga.; J. A. Franklin, Augusta, Ga.; Tom Taylor, Newnan, Ga.

DU PONT DE NEMOURS & CO., E. I., Grasselli Chemicals Dept., Wilmington, Del. Howard J. Smith, Dist. Sales Mgr., W. F. Hummel, Salesman, 414 S. Church St., Charlotte, N. C.

DU PONT DE NEMOURS & CO., E. I., Rayon Div., F. H. Coker, Dist. Sales Mgr., 414 S. Church St., Charlotte, N. C. Acetate Div., J. J. Cook, Dist. Sales Mgr., 414 S. Church St., Charlotte, N. C.

DU PONT DE NEMOURS & CO., Inc., E. I., The R. & H. Chemicals Dept., Wilmington, Del. R. M. Levy, Dist. Sales Mgr., 302 W. First St., Charlotte, N. C.

EATON, PAUL B., 213 Johnston Bldg., Charlotte, N. C.

ENGINEERING SALES CO., 217 Builders' Bldg., Charlotte, N. C., S. R. and V. G. Brookshire.

FOSTER MACHINE CO., Westfield, Mass. Sou. Office, 813 Johnston Bldg., Charlotte, N. C.

FRANKLIN MACHINE CO., 44 Cross St., Providence, R. I.

FRANKLIN PROCESS CO., Providence, R. I. Sou. Plants, Greenville, S. C., and Chattanooga, Tenn.

FREDERICK IRON & STEEL CO., THE, Frederick, Md. Sou. Reps., R. L. Selby, Piedmont Engineering Co., Charlotte, N. C.; Boiler Equipment Service Co., Atlanta, Ga.

GENERAL COAL CO., 1215 Johnston Bldg., Charlotte, N. C., C. L. Rowe, Sou. Sales Mgr. Reps., J. W. Lassiter, F. W. Reagan, E. H. Chapman, Charoltte, N. C.; J. C. Borden, Grace American Bldg., Richmond, Va.; D. H. R. Wigg, Wainwright Bldg., Norfolk, Va.; W. A. Counts, Law & Commerce Bldg., Bluefield, W. Va.; H. C. Moshell, Peoples Bank Bldg., Charleston, S. C.; P. W. Black, Greenville, S. C.; H. G. Thompson, Bristol, Tenn.

GENERAL DYESTUFF CORP., 435 Hudson St., New York City. Sou. Office and Warehouse, 1101 S. Blvd., Charlotte, N. C., B. A. Stigen, Mgr.

GENERAL ELECTRIC CO., Schenectady, N. Y. Sou. Sales Offices and Warehouses, Atlanta, Ga., E .H. Ginn, Dist. Mgr.; Charleston, W. Va., W. L. Alston, Mgr.; Charlotte, N. C., E. P. Coles, Mgr.; Dallas, Tex., L. T. Blaisdell, Dist. Mgr.; Houston, Tex., E. M. Wise, W. O'Hara, Mgrs.; Oklahoma City, Okla., F. D. Hathway, B. F. Dunlap, Mgrs. Sou. Sales Offices, Birmingham, Ala., R. T. Brooke, Mgr.; Chattanooga, Tenn., W. O. McKinney, Mgr.; Ft. Worth, Tex., A. H. Keen, Mgr.; Knoxville, Tenn., A. B. Cox, Mgr.; Louisville, Ky., E. B. Myrick, Mgr.; Memphis, Tenn., G. O. McFarlane, Mgr.; Nashville, Tenn., J. H. Barksdale, Mgr.; New Orleans, La., B. Willard, Mgr.; Richmond, Va., J. W. Hicklin, Mgr.; San Antonio, Tex., I. A. Uhr, Mgr.; Sou. Service Shops, Atlanta, Ga.; W. J. Selbert, Mgr.; Dallas, Tex., W .F. Kaston, Mgr.; Houston, Tex., F. C. Bunker, Mgr.

GENERAL ELECTRIC VAPOR LAMP CO., Hoboken, N. J. Sou. Reps., Frank E. Keener, 187 Spring St., N. W., Atlanta, Ga.; C. N. Knapp, Commercial Bank Bldg., Charlotte, N. C.

GILL LEATHER CO., Salem, Mass. Sou. Reps., Gastonia, N. C., W. G. Hamner; Greenville, S. C., W. J. Hoore, Ralph Gossett; Dallas, Tex., Russell A. Singleton Co., Inc.

GOODYEAR TIRE & RUBBER CO., Inc., THE, Akron, O. Sou. Offices and Reps., W. C. Killick, 209-11 E. 7th St., Charlotte, N. C.; W. Reynolds Barker, 141 N. Myrtle Ave., Jacksonville, Fla.; C. O. Roome, 500-6 N. Carrollton Ave., New Orleans, La.; J. H. Neiberding, 1128 Union Ave., Memphis, Tenn.; W. R. Burtle, 3rd and Guthrie, Louisville, Ky.; R. G. Abbott, Allen and Broad Sts., Richmond, Va.; E. A. Filley and R. B. Warren, 214 Spring St., N. W., Atlanta, Ga.; J. L. Sinclair, 700 S. 21st St., Birmingham, Ala.; Atlanta Belting Co., Atlanta, Ga.; Battey Machinery Co., Rome, Ga.; Bluefield Supply Co., Bluefield, W. Va.; Gastonia Mill Supply Co., Gastonia, N. C.; Knoxville Belting & Supply Co., Knoxvlile, Tenn.; Laurel Mach. & Fdry. Co., Laurel, Miss.; Orlando Armature Works, Orlando, Fla.; McComb Supply Co., Harlan, Ky., and Jellico, Tenn.; Mills & Lupton Supply Co., Chattanooga, Tenn.; Mississippi Fdry. & Mach. Co., Jackson, Miss.; Moore-Handley Hdwe. Co., Birmingham, Ala.; Morgan's, Inc., Savannah, Ga.; Mulberry Supply Co., Mulberry, Fla.; C. T. Patterson Co., Inc., New Orleans, La.; Pensacola Tool & Supply Corp., Pensacola, Fla.; I. W. Philips ,Tampa, Fla.; Pye-Barker Supply Co., Atlanta, Ga.; Railey Milam Hdwe. Co., Miami, Fla.; Sullivan Hdwe. Co., Anderson, S. C.; Superior Iron Works & Supply Co., Shreveport, La.; Taylor Iron Works & Supply Co., Macon, Ga.; Textile Mill Supply Co., Charlotte, N. C.; Tidewater Supply Co., Norfolk, Va., Columbia, S. C., Asheville, N. C.

GREENVILLE BELTING CO., Greenville, S. C.

GULF OIL CORPORATION OF PA., Successor to **GULF REFINING CO.,** Pittsburgh, Pa. Division Sales Offices: Atlanta, Ga.—A. M. Wright, Greenville, S. C.; T. C. Scaffe, Spartanburg, S. C.; J. H. Hooten, Gastonia, N. C.; R. G. Burkhalter, Charlotte, N. C.; G. P. King, Jr., Augusta, Ga.; Boston, Mass.; New York, N. Y.; Philadelphia, Pa.; New Orleans, La.; Houston, Tex.; Louisville, Ky.; Toledo, O.

HART PRODUCTS CORP., 1440 Broadway, New York City. Sou. Mgr., Charles C. Clark, Box 274, Spartanburg, S. C. Sales Reps., Tally W. Piper, Box 534, Fairfax, Ala., W. R. Sargent, Greenville, S. C.

H & B AMERICAN MACHINE CO., Pawtucket, R. I. Sou. Offices, 815 The Citizens and Southern National Bank Bldg., Atlanta, Ga., J. C. Martin, Agt.; Johnston Bldg., Charlotte, N. C., Elmer J. McVey, Mgr.; Fritz Sweifel, Fred Dickinson, Jim Miller, sales and service representatives.

HERCULES POWDER COMPANY, Wilmington, Del. Distributors—Burkart-Schier Chemical Co., Chattanooga, Tenn.; Hercules Powder Co., Paper Makers Chemical Div., Atlanta, Ga. Warehouses—American Storage and Warehouse Co., 505-513 Cedar St., Charlotte, N. C.; Textile Warehouse Co., 511-513 Rhett St., Greenville, S. C.; South Atlantis Bonded Warehouse Corp., Washington and Macon Sts., Greensboro, N. C.

HERMAS MACHINE CO., Hawthorne, N. J. Sou. Rep., Carolina Specialty Co., P. O. Box 520, Charlotte, N. C.

HOLBROOK RAWHIDE CO., Providence, R. I. Sou. Distributors, Odell Mill Supply Co., Greensboro, N. C.; Textile Mill Supply Co., and Charlotte Supply Co., Charlotte, N. C.; Gastonia Mill Supply Co., Gastonia, N. C.; Sullivan Hdw. Co., Anderson, S. C.; Montgomery & Crawford, Spartanburg, S. C.; Carolina Supply Co., Greenville, S. C.; Fulton Supply Co., Atlanta, Ga.; Southern Belting Co., Atlanta, Ga.; Greenville Textile Mill Supply Co., Greenville, S. C., and Atlanta, Ga.; Young & Vann Supply Co., Birmingham, Ala.; Waters-Garland Co., Louisville, Ky.

HOUGHTON & CO., E. F., 240 W. Somerset St., Philadelphia, Pa. Sou. Sales Mgr., W. H. Brinkley, 1301 W. Morehead St., Charlotte, N. C. Sou. Reps., Walter Andrew, 1306 Court Square Bldg., Baltimore, Md.; C. L. Elgert, 1306 Court Square Bldg., Baltimore, Md.; S. P. Schwoyer, 507 N. Main St., High Point, N. C.; D. O. Wylie, 1301 W. Morehead St., Charlotte, N. C.; J. J. Reilly, 2855 Peachtree Rd., Atlanta, Ga. (Apt. 45); H. F. Graul, 605 Idlewild Circle, Birmingham, Ala.; V. C. Shadden, 1821 Auburndale Ave., Chattanooga, Tenn.; B. E. Dodd, 333 St. Charles St., New Orleans, La.; J. W. Byrnes, 333 St. Charles St., New Orleans, La.; G. J. Reese, 402 S. Independence St., Sapulpa, Okla.

HOUGHTON WOOL CO., 253 Summer St., Boston, Mass. Sou. Rep., Jas. E. Taylor, P. O. Box 2084, Phone 3-3692, Charlotte, N. C.

HOWARD BROS. MFG. CO., Worcester, Mass. Sou. Office and Plant, 244 Forsyth St., S. W., Atlanta, Ga., Guy L. Melchor, Mgr. S. W. Rep., Russell A. Singleton Co., Inc., Mail Route 5, Dallas, Tex.; J. Floyd Childs, 244 Forsyth St., S.W., Atlanta, Ga.

HUBINGER CO., THE, Keokuk, Iowa. Southeastern Sales Rep., Chester M. Goodyear, 1284 Piedmont Ave., N.E., Atlanta, Ga. Warehouse stocks at Greenville, S. C., Winston-Salem, N. C., Atlanta, Ga.

KENNEDY CO., W. A., 814 S. Tryon St., Charlotte, N. C. W. A. Kennedy, Pres.

JACOBS MFG. CO., E. H., Danielson, Conn. Sou. Rep., W. Irving Bullard, Pres., Charlotte, N. C. Mgr. Sou. Service Dept., S. B. Henderson, Greer, S. C.; Dan B. Griffin, Southern Sales Rep., E. H. Jacobs Mfg. Co. Sou. Distributors, Odell Mill Supply Co., Greensboro, N .C.; Textile Mill Supply Co., and Charlotte Supply Co., Charlotte, N. C.; Gastonia Mill Supply Co., Gastonia, N. C.; Shelby Supply Co., Shelby, N. C.; Sullivan Hdw. Co., Anderson, S. C.; Montgomery & Crawford, Spartanburg, S. C.; Industrial Supply Co., Clinton, S. C.; Carolina Supply Co., Greenville, S. C.; Fulton Supply Co., Atlanta, Ga.; Southern Belting Co., Atlanta, Ga.; Greenville Textile Mill Supply Co., Greenville, S. C., and Atlanta, Ga.; Young & Vann Supply Co., Birmingham, Ala.; Waters-Garland Co., Louisville, Ky.

JACKSON LUMBER CO., Lockhart, Ala.

KEEVER STARCH CO., Columbus, O. Sou. Office, 1200 Woodside Bldg., Greenville, S. C.; Daniel H. Wallace, Sou. Agt. Sou. Warehouses, Greenville, S. C., Charlotte, N. C. Sou. Reps., Claude B. Iler ,P. O. Box 1383, Greenville, S. C.; Luke J. Castile, 515 N. Church St., Charlotte, N. C.; F. M. Wallace, 1115 S. 26th St., Birmingham, Ala.

LAUREL SOAP MFG. CO., Inc., 2607 E. Tioga St., Philadelphia, Pa. Sou. Rep., A. Henry Gaede, P. O. Box 1083, Charlotte, N. C.

McLEOD, INC., WILLIAM, 33 Elm St., Fall River, Mass. Sou. Rep., Edward Smith, Asheboro, N. C.

MAGUIRE & CO., JOHN P., 370 Fourth Ave., New York City. Sou. Rep., Taylor R. Durham, First National Bank Bldg., Charlotte, N. C.

THE MERROW MACHINE CO., 8 Laurel St., Hartford, Conn. E. W. Hollister, P. O. Box 721, Spartanburg, S. C.; R. B. Moreland, P. O. Box 895, Atlanta, Ga.

MOCCASIN BUSHING CO., Chattanooga, Tenn. Sou. Jobbers: Odell Mill Supply Co., Greensboro, N. C.; Shelby Supply Co., Shelby, N. C.; Greenville Textile Supply Co., Greenville, S. C.; M. C. Thurston Co., Richmond, Va.; Ferebee-Johnson Co., Lynchburg, Va.; Knoxville Belting Co., Knoxville, Tenn.; Miss. Foundry & Mch. Co., Jackson, Miss.; Corinth Machine Co., Corinth, Miss.; Industrial Supplies Co., LaGrange, Ga.; Philips Hdw. & Supply Co., Columbus, Ga.; Macon Supply Co., Macon, Ga.; Owen-Richards Co., Birmingham, Ala.; Matthews-Morse Sales Co., 909 S. Mint St., Charlotte, N. C.

NATIONAL OIL PRODUCTS CO., Inc., Harrison, N. J. Sou. Offices and Plant, Cedartown, Ga. Sou. Reps., D. Rion, Cedartown, Ga.; C. E. Elphick, 100 Buist Ave., Greenville, S. C.; R. B. MacIntyre, care D. G. MacIntyre, Franklinton, N. C.; Paul Starke, 2026 Eaton Place, Baltimore, Md.; G. H. Small, 226 Bolling Road, Atlanta, Ga. Warehouse, Chattanooga, Tenn.

NATIONAL RING TRAVELER CO., 257 W. Exchange St., Providence, R. I. Sou. Office and Warehouse, 131 W. First St., Charlotte, N. C., Sou. Agt., C. D. Taylor, Gaffney, S. C. Sou. Reps., L. E. Taylor, Box 272, Atlanta, Ga.; Otto Pratt, Gaffney, S. C.; H. B. Askew, Box 272, Atanta, Ga.

NEW ENGLAND BOBBIN & SHUTTLE CO., Nashua, N. H Sou. Rep., D. C. Ragan, High Point, N. C.

N. Y. & N. J. LUBRICANT CO., 292 Madison Ave., New York City. Sou. Office, 1000 W. Morehead St., Phone 3-7191, Charlotte, N. C., Spartanburg, S. C., Atlanta, Ga., Greenville, S. C.

NORLANDER MACHINE CO., New Bedford, Mass. Sou. Plant, 213 W. Long St., Gastonia, N. C.

NORMA-HOFFMANN BEARINGS CORP., Stamford, Conn. Sou. Rep., E. W. Lawrence, 1841 Plaza, Charlotte, N. C.

ONYX OIL & CHEMICAL CO., Jersey City, N. J. Sou. Rep., Edwin W. Klumph, 2018 Dilworth Road, West, Charlotte, N. C.; Cliff C. Myers, 2131 Charlotte Drive, Charlotte, N. C.

PARKS-CRAMER CO., Plants at Fitchburg, Mass., and Charlotte, N. C. Atlanta Office, Bona Allen Bldg.

PERKINS & SON, Inc., B. F., Holyoke, Mass.

PROVIDENT LIFE & ACCIDENT INS. CO. (Group Accident and Health, and Welfare Plans Div.), Chattanooga, Tenn. Southeastern Div. Office, 203 Commercial Bldg., Gastonia, N. C.

THE PURE OIL CO., Industrial Sales Dept., Southeastern Division Office, 140 Spring St. S. W., Atlanta, Ga., O. T. Clark, Mgr.

RHODE ISLAND TOOL CO., Providence, R. I. Sou. Rep., Henry Anner, Box 1515, Greenville, S. C.

RHOADS, J. E. & SONS, 35 N. Sixth St., Philadelphia, Pa. Sou. Reps., L. H. Schwoebel, 864 W. Fifth St., Winston-Salem, N. C.; J. W. Mitchell, Box 1589, Greenville, S. C.; A. S. Jay, 1600 S. 21st St., Birmingham, Ala.; J. T. Hoffman, 88 Forsyth St., S. W., Atlanta, Ga.; Atlanta Store, C. R. Mitchell, Mgr., 88 Forsyth St., S. W., Phone Walnut 5915, Atlanta, Ga.

ROY & SONS, B. S., Worcester, Mass. Sou. Office, Greenville, S. C., John R. Roy, Representative.

SACO-LOWELL SHOPS, 60 Batterymarch St., Boston, Mass. Sou. Office and Supply Depot, Charlotte, N. C., Walter W. Gayle, Sou. Agent; Atlanta, Ga., John L. Graves and Miles A. Comer, Selling Agents; Greenville, S. C., H. P. Worth, Selling Agent.

SEYDEL CHEMICAL CO., Jersey City, N. J. Sou. Rep., Harold P. Goller, Greenville, S. C.; Alexander W. Anderson, 10 Milton Ave., Edgewood, R. I.

SEYDEL-WOOLLEY & CO., 748 Rice St., N. W., Atlanta, Ga.

SHERWIN-WILLIAMS CO., THE, Cleveland, O. Sou. Warehouses: Richmond, 1315 E. Main St.; Savannah, 655 E. Liberty St.; Charlotte, 222 W. First St.; Spartanburg, 158 E. Main St.; Columbia, 1713 Main St.; Atlanta, 70 Broad St., N. W.; Columbus, 1038 Broadway; Nashville, 711 Church St.; Chattanooga, 826-28 Broad St.; Birmingham, 2016 Third Ave., N.; Montgomery, 33 Commerce St.; Knoxville, 314 S. Gay St. Sou. Reps., E. H. Steger, 222 W. 1st St., Charlotte, N. C.; R. B. Olney, 158 E. Main St., Spartanburg, S. C.; W. O. Masten, 2308 S. Main St., Winston-Salem, N. C.; T. R. Moore, 509 Westover Ave., Roanoke, Va.; G. N. Jones, 207 Glascock St., Raleigh, N. C.; W. H. Mastbrook, 105 W. Iver St., Greensboro, N. C.; John Limbach, 70 Broad St., N. W., Atlanta, Ga.; D. S. Shimp, 3 Cummins Station, Nashville, Tenn.; O. A. King, Apt. 1, 2400 Barton Ave., Richmond, Va.; James C. Wilkinson, 230 Bay View Blvd., Portsmouth, Va.

SIGNODE STEEL STRAPPING CO., 2600-2620 N. Western Ave., Chicago, Ill. Sou. Warehouses and Offices, Greensboro, N. C., 908 Lakeview St., Phone 6935, O. B. Shelton, Rep.; Atlanta, Ga., 113 Courtland St., S. E., A. S. Stephens, Rep.; New Orleans, La., 700 Tchoupitoulas St., P. E. Odenhahl, Rep.

SOCONY-VACUUM OIL CO., Inc., Southeastern Div. Office, 1602 Baltimore Trust Bldg., Baltimore, Md. Warehouses: Union Storage Warehouse Co., 1000 W. Morehead St., Charlotte, N. C.; Textile Warehouse Co., 511 Rhett St., Greenville, S. C.; South Atlantic Bonded Warehouse Co., Greensboro, N. C.; New South Express Lines, Columbia, S. C.; Terminal Storage Corp., 317 N. 17th St., Richmond, Va.; Taylor Transfer Co., 102 Boush St., Norfolk, Va.

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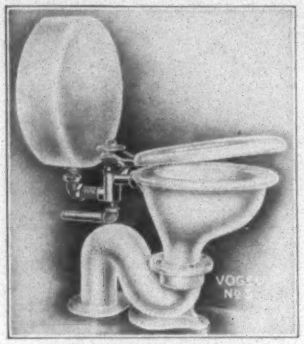

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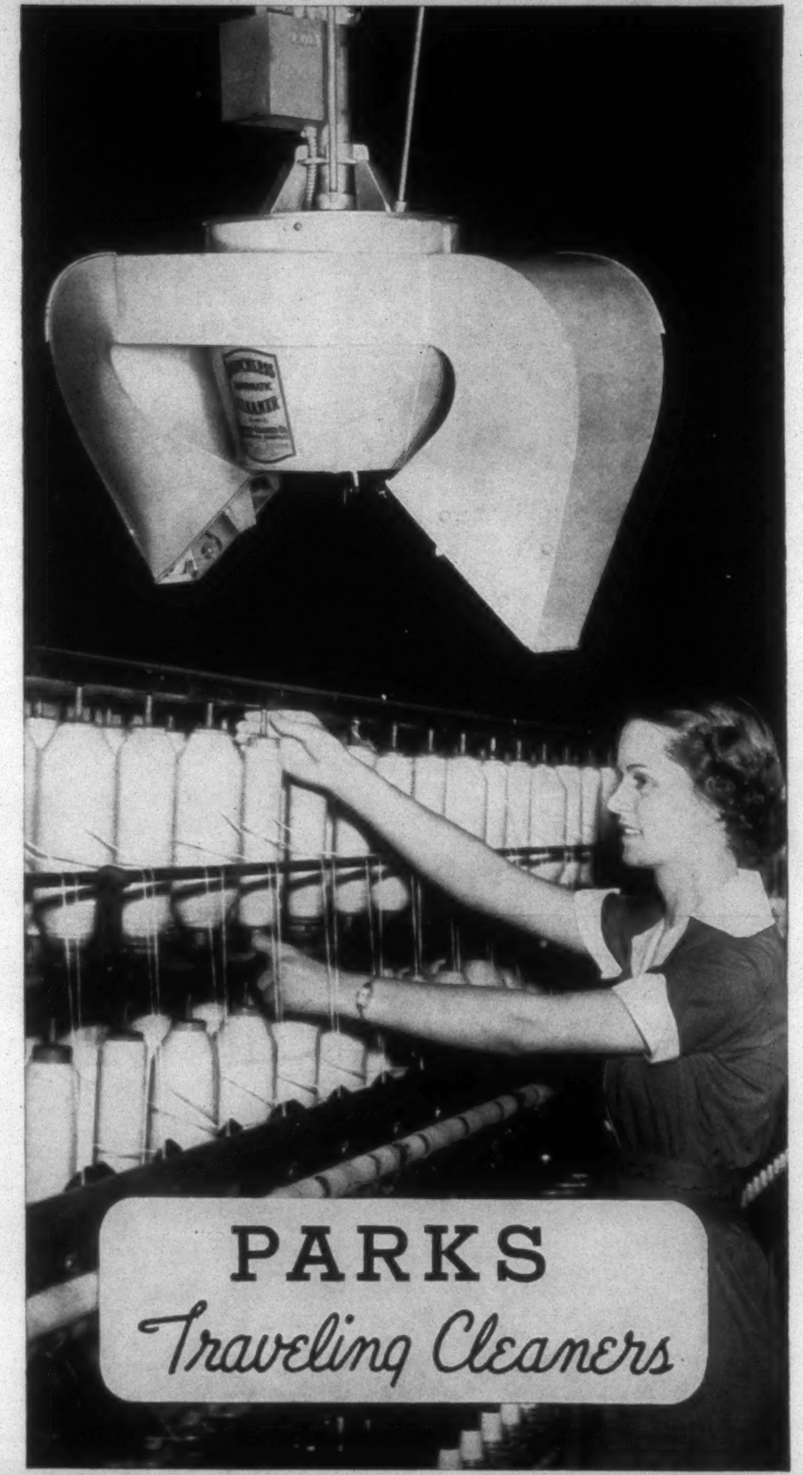

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